

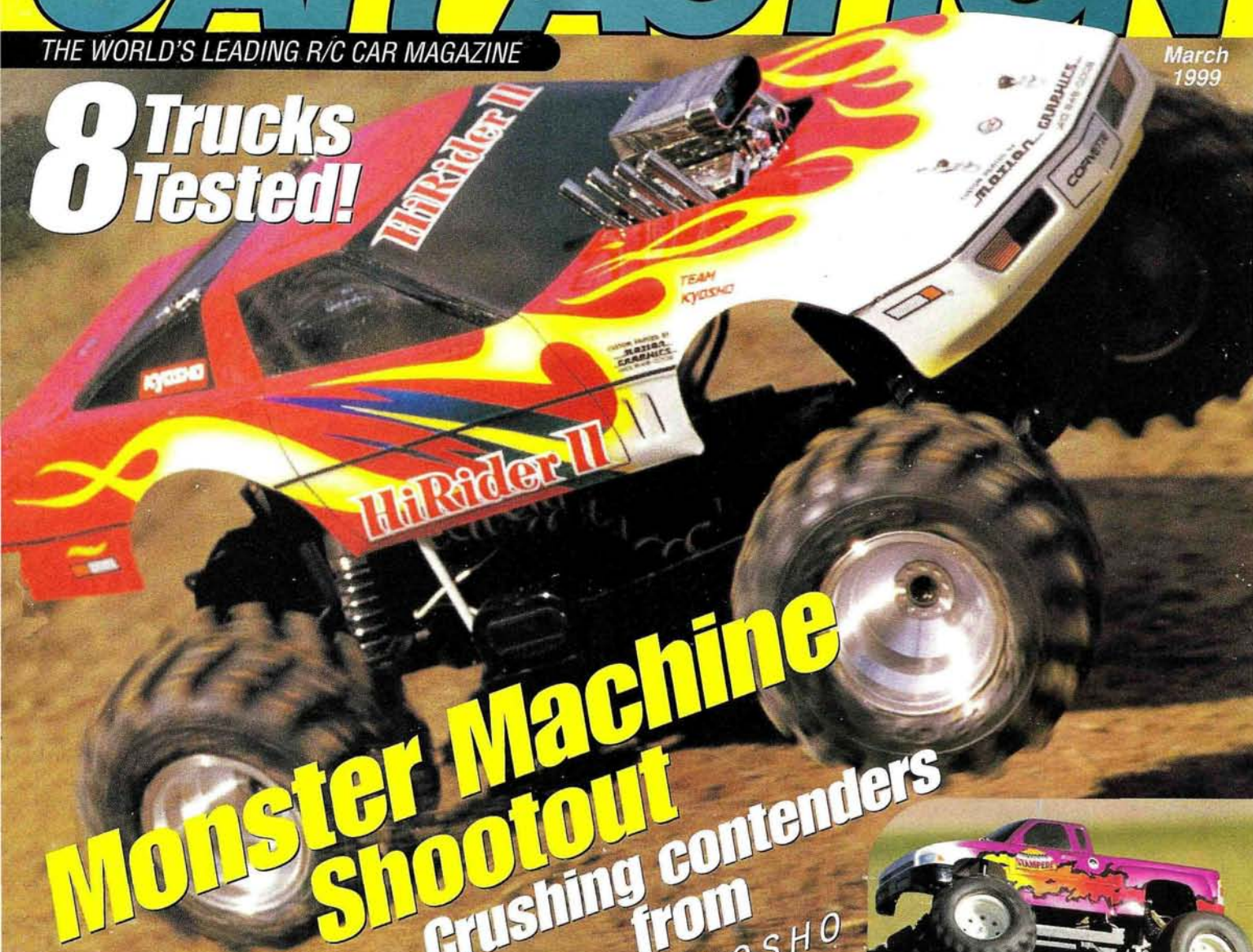


CAR ACTION

THE WORLD'S LEADING R/C CAR MAGAZINE

March 1999

8 Trucks Tested!



Monster Machine Shootout

crushing contenders from
KYOSHO
TAMIYA
TRAXXAS
MRC

HOW TO
TUNE YOUR
RS4 MT FOR
OFF-ROAD

PROJECT
TCS TAMIYA
TA03R



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WEAPON • MRC/ACADEMY Q-TEE
COUPE • CEN SP1 • KYOSHO GP SPIDER MKII
• THUNDER TIGER TWISTER

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ON THE COVER (top to bottom): HPI Super Nitro RS4; Kyosho HiRider II; Traxxas Stampede; Tamiya King Blackfoot; MRC Ironman. All photos by Walter Sidas.

Too much fun!

I'll confess: after spending two sunny afternoons playing in the dirt with eight grin-inducing trucks under the auspices of "work," I felt as if my editorial compadres and I had been cheating our employers. Those should have been counted as vacation days! Even if only the smallest fraction of the fun we had testing the trucks for the **2WD Electric Monster Truck Guide** comes through on the printed page, you'll have a good sense of the laugh-out-loud time we had—and you can have—with these vehicles.



If that's not enough truck action for you, there are more big-tire thrills in our coverage of the National Radio Control Truck Pulling Association World Championships. Contributing author Kevin Hetmanski not only covered the event, but he also competed in it! **The NR/CTPA World Champs** is always a colorful event with lots of trick hardware and ... well, you'll see for yourself. Check it out!

For high-speed hijinks back on pavement, we turn our attention to the world of R/C drag racing, courtesy of faithful contributor—and long-time dragger—Mike Ogle. Mike explains the whys and hows of scale quarter-mile competition in **How to Get Started in R/C Drag Racing**. If you're feeling the need for speed, this is your fix.



For another take on flat-top high performance, Tamiya's mid-motor touring chassis gets a competition makeover at the hands of senior editor George M.



Gonzalez—a Tamiya guy from way back ("Dude, I loved my Hotshot!"). George shows how he built his Tamiya Championship Series-ready racer in **Project TA03R**. G-man, if your 'R performs as good as it looks, you'll be unstoppable.

And of course we've packed in all the usual good stuff: six big "Thrash Tests," "Racer News," "Product Watch"—all that's new in R/C. Looks like I'm just about out of space, so I'll return to the hot projects we have cookin' for April; until then, enjoy!

Peter Vieira

Peter Vieira

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Branche-ing out

I don't know how you guys do it. No matter how hard I try, I can't paint bodies like the ones I see in your magazine. I get bleeds, runs and colors blending with other colors. When I've finished, my bodies look as if they had a run-in with a box of melted crayons. I give up! I just read your February issue and I saw the RS4 article with a purple and silver Mercedes body by Scott Branche; I'd like to have him finish my car's body just like it. Does he paint bodies for other people? How can I contact him?

JOE BARROWS
Queens, NY



Scott will be happy to lay down some paint for you. Contact him at Bodies By Branche, 7904 Ashford Blvd., Laurel, MD 20707; (301) 237-9389; email: flitesite@aol.com. —Greg

Wherefore art thou, GM?

I got an RS4 MT for my birthday and decided to follow your advice to get a reversing ESC. I looked through your reversing ESC guide and found the perfect one: the GM Champ. Then I looked through the online catalogs, the ads in the mag, the Hobby Shack catalogs—everything!—to find out where I can get one, but I can't find it anywhere! Can you help? [email] PIRANHA

Did you ask your local shop to call GM and order one for you?

They can help. You can also give a shout to Sheldon's Hobbies [(408) 943-1714] and Stormer Hobbies [(800) 255-7223]; both now carry GM Racing speed controls. —Pete

Making the Scene, Part 2

Peter, I hope you can help me to solve my dilemma. I just read the letter in the February issue from a guy in Denver who wants to start an indoor club. You only identified him as "DITOME2." I have tried numerous "reverse searches" but have not been able to locate this person. I live in the Denver area, too, and want to contact him. Could you

give me his (or her) full email address, or would this violate some privacy rule? Feel free to print my email address; I welcome contact from area racers. Maybe a group of us could get something started. I'm in Fort Collins, about an hour north of Denver.

CHUCK MARTIN
Orpiment@aol.com

Congratulations, Chuck: you are now the unofficial epicenter of the Denver racing scene, since you gave me the green light to run your email address! Good luck; I hope you and your buds can make your indoor racing dreams come true.

Keep in touch. —Pete

Enquiring Minds want to Know ...

I received the latest issue of *R/C Car Action* in the mail, and my neighbor and I—both RS4 Racer owners—have already gone through the article on the RS4 several times. What a great article! I have a few questions:

1. I noticed that the cars don't have battery switches. Is it just because it would add weight, and not necessary because you can just put the battery connector directly into the receiver and disconnect it when you've finished?
2. How do you determine which spring/swaybar setups are best for your car and track?
3. Who makes the cool antenna mount on the HPI car on page 100?
4. How do you measure the temperature of the engine? Do you have one of those MIP 3615 temperature gauges, or do you use something else?
5. Why did you only take one car to the airstrip? I would have been pretty disappointed to have invested so much time building four cars and have my first outing cut short by a "spectacular blow-over." And what is a blow-over anyway?

We really enjoy your magazine. Keep up the great work. [email] ANTHONY

Anthony, the battery switches are just a matter of convenience. I prefer to run without a switch; it's just another element that can go bad and really ruin your day. If it's possible, I recommend that you plug the receiver pack directly into the receiver.

The springs and swaybars are determined by a process of trial and error. Typically, smooth tracks require stiffer springs and thicker shock oils, while for bumpier tracks, you're best with lighter springs and lighter shock oils.

The antenna mount used on the HPI optional car is made by Elite Speed Products, 3923 E. Mound St., Columbus, OH 43227; (614) 231-4170; fax (614) 237-4126.

We used an Exergen infrared temp sensor to measure the engine temperature. The MIP gauge also works well, but there

WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

INTERNET ADDRESSES:

Chris Chianelli: chrisc@airage.com
George Gonzalez: georgeg@airage.com
Steve Pond: stevep@airage.com
Peter Vieira: peterv@airage.com
Greg Vogel: gregv@airage.com

is nothing more accurate than (or as expensive as) the Exergen. (Check out the "Product Watch" on the Exergen temp sensor in this issue.)

A blow-over is when a car reaches such a high speed that the air gets underneath it and the car goes sailing through the air—usually blowing over backwards, hence the term "blow-over." —Steve

Current Question

How can ESCs possibly handle the current advertised? Not even a solid piece of silver of that size could take that much. That is enough current to weld with. Any connector in the industry rated that high will have very large wire and large silver contacts. The fuse that is in them is a dead giveaway. Thirty amps is more realistic. I'd appreciate any explanation you may have. [email] DAVID LENZ

It's true, David: the amp ratings advertised for ESCs would require a cable of about a 1/2-inch diameter to maintain that kind of current flow. Most, if not all, ESC manufacturers advertise the maximum peak current capacity of the FET or transistor only—not of the entire ESC. In addition, the peak current listed is only sustainable for microseconds, not the continuous loads seen in actual use. The FET manufacturers usually establish a constant and a peak current capacity. The peak capacity is always the most impressive, but it certainly isn't representative of what an ESC can handle continuously. Though these numbers may seem to be deceiving, they do at least indicate how much current a FET can handle. —Steve



Mini Mantis Fiat 500

Offered on the specially shortened and narrowed Mantis chassis created for the Mini Cooper, Kyosho's new 1/10-scale Fiat 500 is not only nitro powered but is also available in convenient, 90-percent-built form. The Fiat has rear-wheel drive (just like the full-scale version) and is motivated by Kyosho's GX-12 pull-start engine. Despite its smaller size, the Fiat's chassis shares many parts with the entire Mantis Series vehicles, so there's no shortage of Kyosho hop-up options. Specs are: length—14.4 inches (365.7mm); width—6.9 inches (175mm); height—5.9 inches (150mm); wheelbase—8.2 inches (208mm).

Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021; (800) 682-8948; fax (217) 398-0008.

HPI Racing C12 engine

Here's the latest HPI .12 nitro powerhouse. It's built by NovaRossi and has all of the features of the NovaRossi TOP C12 engine featured in our December issue. Its features include a two-piece cylinder head, turbulence-reducing disk-style crankshaft counterweight, high-quality knife-edged connecting rod, long-lasting chrome-plated brass sleeve (ABC), high-flow intake porting and O-ring-sealed backplate. The HPI C12 will be available in four versions: competition ABC (with or without pull-start) and a less expensive version with a nickel-plated sleeve (also available with or without a pull-start).

The HPI C12 is manufactured to the same exacting tolerances as NovaRossi's own engines, so you can expect the same level of superior performance as the nitro racing world has come to expect from the maker of the world's most powerful R/C engines.



BY CHRIS CHIANELLI



A Race done Right!

Many of you know how I feel about what I call "cost-controlled racing" (CCR). When I came across The South Jersey Touring Car and Street Spec Series Race presented by Trinity and Ray Murray's South Jersey Cost Controlled Racing, I just had to investigate further. I found out this is one

of the most laid-back, smile-filled events where racers get together to have some serious fun racing—where all have a shot at winning.

The classes are Modified Touring, Stock Gas Touring, Modified Gas Touring, F1 Modified, 1/10-scale Pan Chassis and, of course, Trinity's own—and well thought out, might I add?—Street Spec. As you can see, the high-traction asphalt course is laid out to be quick and challenging but easy to drive and easy on the cars.

Located at the Alpine Lounge on Blockhorse Pike in Williamstown, NJ, food and refreshments are only a few steps away at the Alpine Lounge Restaurant (a very important ingredient for a great day of racing). Ray has been very successful with this race. If you want to join the fun or to get a few

tips from him on how to start your own CCR program, give him a call at (609) 629-4809. He's a good guy and happy to help.

Sleek and Sleeker

The new 1999 Accord Coupe and 4-door sedan are now available from Protoform. The sleek 4-door and super-sleek coupe Accords certainly look as if they'll be great handling bodies. Designed specifically for 190mm-width 4WD and FWD sedan chassis, both versions come with add-on wing, mounting hardware, window masks and detail sticker sheet. The 4-door version meets all ROAR, NORRCA and IFMAR specifications.

Protoform, P.O. Box 456,
Beaumont, CA 92223;
(909) 849-9781; fax
(909) 849-2968.



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Bolink Bug

The Bug is back, and Bolink has a 190mm version for you touring-car fanatics.

That's right; Bolink's version of the 1999 Bug is designed to fit most 190mm touring-car chassis. It has been stretched to fit the standard touring-car wheelbase of 10 inches while still retaining that classically cool Bug look. The body includes a molded-in "hump" in the rear for custom mounting your favorite touring wing.

Also new from Bolink is the 1999 Taurus Narrow. The '98 Taurus is already known for its great handling; now the '99's rear downforce has been increased slightly to give even better front-to-rear balance on small to medium-size tracks with almost no increase in drag. Available in both standard (0.040) and (0.030) Pro-lite thickness.

Bolink R/C Cars Inc., 420 Hosea Rd., Lawrenceville, GA 30045; (770) 963-0252; fax (770) 963-7334.



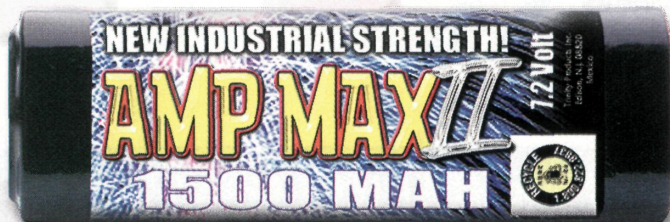
Andy's Super Speedway Truck

Right in line with the super popularity of the NASCAR on-road racing truck is Andy's Supertruck body, which is designed to fit superspeedway pan-car chassis. This aerodynamic race-truck body will also fit most 190mm-wide 4WD sedan chassis. Features of this track-tested and -developed body include: 100-percent premium Lexan by GE; a single-pull molding process that, according to the manufacturer, produces a more consistent thickness of plastic throughout; and detailed grill and window-net work.

Great Planes Model Distributors, 2904 Research Rd., Champaign, IL 61826-9021; (800) 682-8948; fax (217) 398-0008.

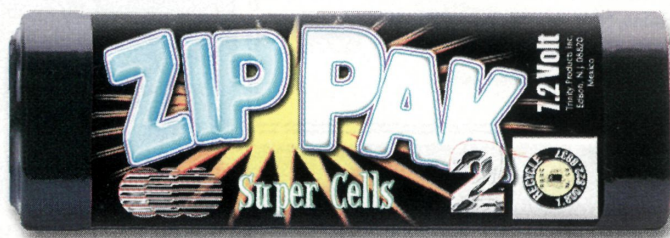


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"Better than the original, more action and a lower cost!"

Stalker Solo radar gun

I've been at the receiving end of a radar gun too many times ... Now I can get revenge! "Excuse me, Mr. Chianelli, do you know how fast you were going?" "Why, yes, officer, I do. Do you know how fast you were going? Huh? Do ya?" Law enforcement practical jokes aside (yeah, the cops love those), Stalker's new Solo radar gun looks like the hot ticket for those who just gotta know how fast their R/C machines can go.

The Solo is designed to deliver professional-level performance in a very affordable



package, and Stalker is known in the industry as being the clear leader in performance and quality. Its radar guns are used by nearly 90 percent of professional

baseball and racing teams! Like the professional models, the Solo is manufactured using only the best materials and components.

The Stalker Solo combines extremely simple operation with the most popular features, including three selectable operation modes:

- **VEHICLE MODE**—1/10mph-resolution automatic peak speed tracking.
- **ELAPSED TIME AT SPEED**—displays the elapsed time to the last speed sample, e.g., for 0 to 60mph testing.
- **BALL SPORTS MODE**—displays a baseball's speed at the release point (peak), at the plate, or both locations.

Price: \$499.95

Radar Sales, 5640 International Pky., Minneapolis, MN 55428; (612) 533-1100; fax (612) 533-1400; website: www.radarsales.com.

Nuova Faor Parts with flair

It's all about "the look." Nuova Faor's upgrade parts have "the look" with purple anodizing, chrome plating and precise machining. Check out the purple MP-5 chassis; it has been milled to reduce its weight while retaining the strength needed to be a sturdy platform for an MP-5. Among the other parts available are machined hex hubs and suspension tie bars for the MP-5 and MBX-4, diff cases, flywheels and a solid-axle center-diff replacement. Chrome-plated clutch bells and main gears are also available to give your car gleam and performance (middle).

The rechargeable D-cell glow starter (right) can also be used as a plug wrench to tighten the plug—definitely a handy track tool. Have a hard time adjusting camber on your 1/8 buggy? Nuova Faor made it easier with its new 1/8 camber gauge (bottom). The setup is similar to other gauges you've seen; bolt the plates onto the axles, and use the degree gauge to set the camber—simple easy and effective.

Ace Hobby Distributors, 116W. 19th St., P.O. Box 472, Higginsville MO 64037-0472; (660) 584-7121; fax (660) 584-6303.



AMERICAN RACING IN 1/10 SCALE

You know all those awesome mags made by American Racing Custom Wheels you see on full-scale cars and trucks? Well, now you can get exact replicas of them for your 1/10-scale R/C car because Hobby-Tech Inc. is officially licensed to reproduce them. Hobby-Tech has gone to extreme lengths to reproduce these wheels; even the part numbers on the wheels match the part numbers on full-scale versions. The scale slick tires with Goodyear logos are also from Hobby-Tech. I know I'll be using them on a few of my up-and-coming projects.

Hobby-Tech Inc., 15206 Keswick St., Van Nuys, CA 91405; (818) 947-3990; fax (818) 786-6255.



DURATRAX

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Win a \$500 gift certificate from Duratrax.

Send a sharp, uncluttered, well-exposed color photo of your car or truck (no Polaroids, please!), along with a brief description, to Readers' Rides, *R/C Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. If we choose to feature your creation, you'll receive a 6-month subscription to *R/C Car Action*, or an extension of your existing subscription. You'll also be eligible to win a \$500 gift certificate from Duratrax in the ninth annual "Readers' Rides of the Year Contest" in the fall of 1999. In case we need to contact you, write your address and phone number on your letter and on the back of every photo you send. Good luck!

Graduation Gift

When Brandon Rials of Hazelcrest, IL, graduated from elementary school last year "with flying colors," his parents rewarded him with his first R/C car. This Kyosho Pure Ten Mantis E.P. has an HPI Porsche 911 turbo body with Yokohama decals and an RPM Fatboy tailpipe. It also features a DuraTrax Spike ESC, Kyosho 540 racing motor, HPI racing wheels and Kawada tires. A Futaba Magnum Sport radio keeps everything under control. Brandon's father helped him paint the body.



Double Trouble

This twosome was built by John Boyer of Homer City, PA. The larger truck (shown with and without the Parma Bigfoot body) is based on the Tamiya Clod Buster. John handmade the frame from 36 feet of 1/8-inch music wire. He designed the suspension system, handcut the cantilevers and special brackets, and also added limiting straps and swaybars. Other features include Associated shocks with Losi springs, a custom interior, Trinity Sapphire motors, a DuraTrax ball-bearing kit, a Novak 410 M1C speed control, Futaba Magnum Junior radio and receiver, Sanyo batteries, a Futaba S-9303 steering servo, Kimbrough servo-saver and Litespeed connectors. As if that wasn't enough, John also scratch-built the "Mini Monster." He began with a BRP 1/18-scale truck body and built the gearbox using Tamiya Grasshopper gears. The suspension links are shortened versions of the Clods with shocks mounted directly on them. Other body parts include Associated short shocks with Losi springs, Associated steering blocks and HPI wheels with DuraTrax tires. Electronics are: Novak 610 HRC speed control, Futaba Magnum Junior radio and receiver, Futaba S-148 steering servo, Trinity Green Machine motor and 1/18-scale BRP truck body painted by John. These are just two of John's many custom creations. Keep up the good work!

Need a Tow?

Trucker George Bachelder of Oak Lawn, IL, custom-built this 38-inch-long King Hauler wrecker. The truck is fully functional for towing other R/C trucks. Among its features are three functional rear ends, a Tamiya tractor light set with backup alarm, one kit and one custom-made drive shaft and a Tamiya motorized support leg kit to operate the boom. George even modified a Slueth model-train smoke generator for functional smokestacks! Realistic sounds include engine start, idle with auto shutoff and acceleration with air brake when the truck decelerates. Among the electronics are a Futaba 4-channel radio and Novak 610 HRC speed control. Ten-four, good buddy!





Four-Wheelin' Fun

It took eight months to complete, but Kavel Javvrek of Vancouver, British Columbia, Canada, can now look with satisfaction at his homebuilt truck. The electronics are: Tekin Titan reverse speed control and double-fan cooling system, Pro stock Yokomo 21 single motors, Sanyo 2000 battery 6-pack, two 9V batteries for fans and lights, Futaba 3401 servo and 3PDF radio system, a Hitec 705 MG 1/4 scale for steering, Novak silicone-coated wires, Deans Ultra plug and RAm lights. Homebuilt features include a frame made mainly of 1/2x 1/2-inch U-profile aluminum; a multi-link suspension system made of 1/4-inch aluminum tubes with inner treaded rods and 4-40 adjustable ball links; and 2/16-inch steel-rod swaybars. Tamiya provided the gearbox and the Ford body. Looks as if this truck could make it up those mountain trails!



Big Brother?

Greg Raciti of Mohegan Lake, NY, built this 1/10-scale HPI RS4 Pro. It's basically stock, except for the add-on belt tensioner and swaybars. A Trinity Midnight motor is under the hood, and a Futaba 1024 PCM radio controls the car's movements. Also

on board are a Novak Hammer Pro ESC and Pro-Match 1700 batteries. Decals on both cars were made out of MonoKote using a Stika machine. Also shown is Greg's 1/18-scale BRP Super Oval Outlaw, which is powered by a Trinity Slotworks motor. A DuraTrax Streak ESC, 4- and 6-cell AA Ni-Cd packs and a Futaba 1024 PCM radio make up the electronics package. Greg says the HPI RS4 Pro has seen action at TARMAC roadcourse in Poughkeepsie, NY. He adds that these cars are an "awesome" and inexpensive way to get into a great hobby.



Three's Company

These cars were created in Butler, PA, by Sean McKain. The Team Losi Double X 'CR' features a GM V-12 speed control, GM Purple Bull stock motor, graphite chassis and suspension arms, Phantom aluminum bulkhead and MIP Shiny CVDs. Control is courtesy of an Airtronics receiver, XL2P radio and 94257 servo. Chromtech USA chromed the Losi wheels for this car, which races at Xtreme R/C Raceway in Niles, OH. The other Losi is a Double XT 'CR' powered by a GM Purple Bull stock motor. Other gear includes a Novak Tempest ESC, titanium turnbuckles, Futaba radio and servo and RPM wheels. Sean's third vehicle is a Yokomo YR4M-2, which also uses a Futaba servo and radio, and another GM Purple Bull stock motor is under the hood. Yokomo Inch-Up wheels and Pro-Line V-

Rage tires complete the rolling stock, and the car is topped off with a Protoform Nissan Primera body. Sean's dad painted all three bodies. Nice goin'!



Take Two

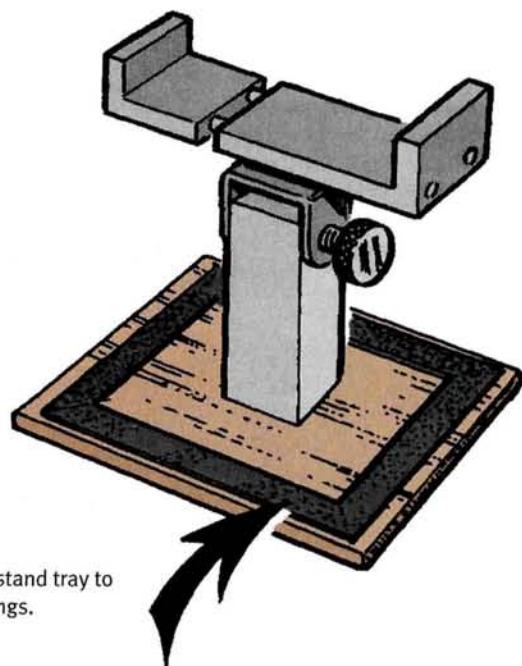
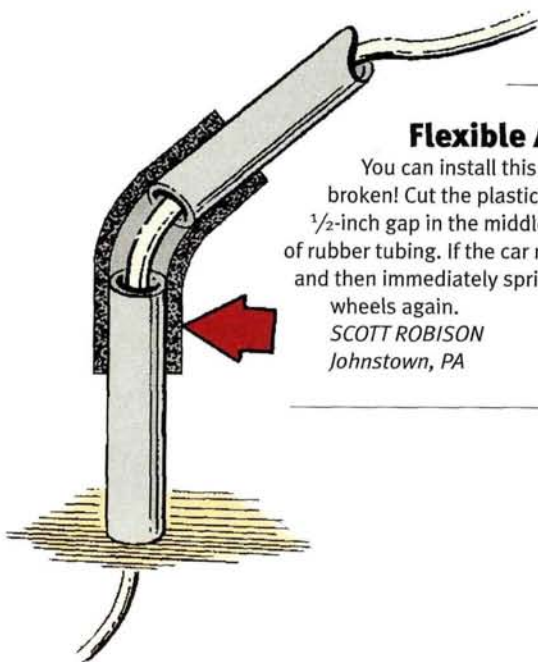
Kristoffer Klemm of Nittedal, Norway, sent us a photo of his latest work: this Schumacher SST 2000 '98 powered by an LRP 17x2 modified motor with Sanyo 2000 batteries. An LRP ICS ESC and Hitec Ranger II radio system control the car. Kristoffer said he has learned a lot since he sent us a picture of his Nitro Storm 2000 a year ago. Looks like his hard work has paid off!

Radio Control Car Action will give a one-year subscription (or one-year renewal if you already subscribe) for each idea used in "Pit Tips." Send a rough sketch to Jim Newman, c/o Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one, nor can we return unused material.

Flexible Antenna Tubing

You can install this now, or wait until the tubing has broken! Cut the plastic antenna tubing so that there's a 1/2-inch gap in the middle of it. Cover the gap with a piece of rubber tubing. If the car rolls, the antenna tubing will bend and then immediately spring back when the car is on its wheels again.

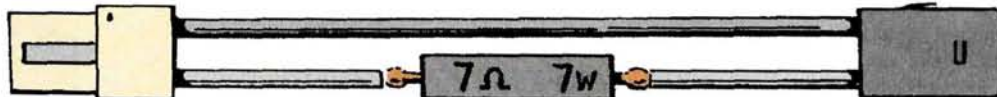
SCOTT ROBISON
Johnstown, PA



Magnetic Parts Tray

Put magnetic strips around your work-stand tray to catch small steel screws, pins and springs.

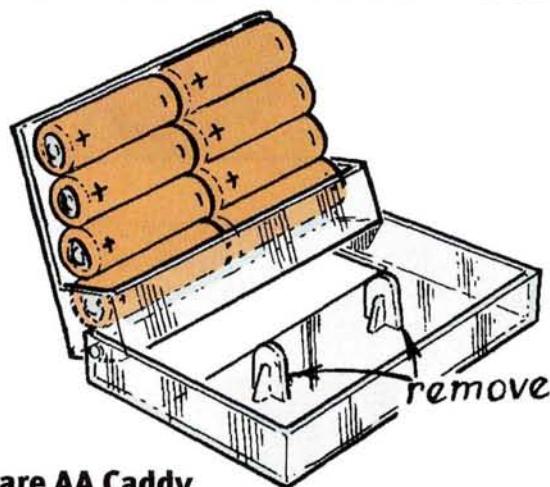
BEN DUCLOS,
Bothwell, WA



Motor Break-in Lead

By using a resistor in this adapter lead, you can use an existing 6-cell battery pack to break in your new motor. The resistor drops the voltage to a sufficiently low level. For a 6-cell pack, Hayward recommends a 7-ohm, 7W resistor from Radio Shack. Caution: use silicone-covered wire because the resistor gets hot when it's discharging.

HAYWARD BUTLER,
Roskilde, Denmark



Spare AA Caddy

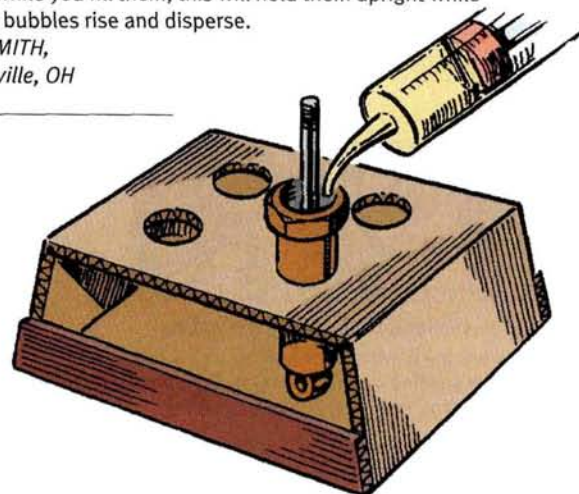
Remove the spindles from an audio-cassette case and then pack eight spare AA batteries in it. They'll be free from the danger of short circuits—always a hazard if they're rolling around in your pit case.

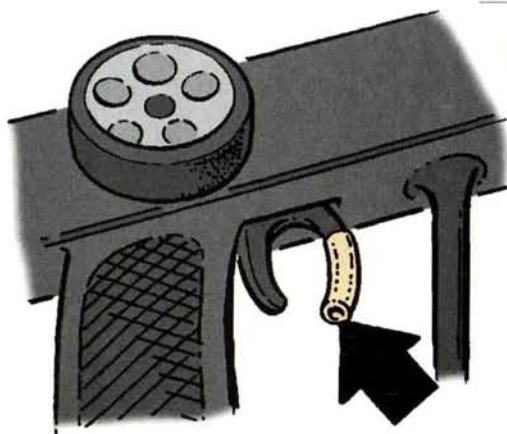
JASON PAUL,
Dover, NH

Shock-Filling Stand

Punch four holes in a piece of corrugated cardboard, fold it as shown, and use a hot-glue gun or tape to attach a strip of cardboard to the base. Insert your shocks into the holes while you fill them; this will hold them upright while the air bubbles rise and disperse.

JEFF SMITH,
Plainsville, OH





No-Slip Trigger

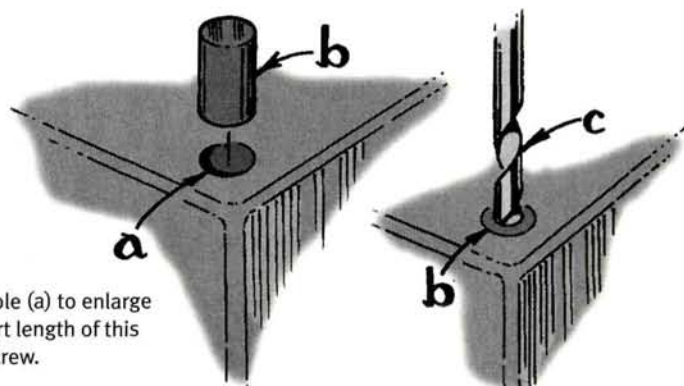
If your finger slips off the brake trigger, or if you have small hands, cover the trigger with a short piece of rubber fuel line.

BRETT THOMPSON,
Salt Lake City, UT

Refurbish Stripped Threads

If you've stripped the threads out of a plastic part, drill the hole (a) to enlarge it to take a plastic "leg" of the car's parts tree (b). Glue a short length of this plastic tree into the hole (b) then re-drill and tap (c) for the screw.

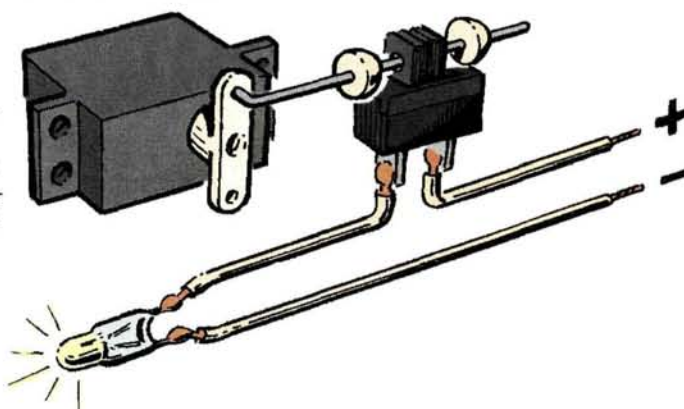
JUSTIN CHANNEL,
Sheridan, WY



Driver-Controlled Lights

For this, you'll need to find room in your car for an extra servo, and you'll also need a 3-channel radio. The additional servo controls a miniature on/off switch, the knob of which has been drilled to allow the passage of the wire pushrod. The two plastic "keepers," or wheel collars, are available in the model plane section of your hobby store. Only one light is shown, but others can easily be added in parallel.

CHRIS DAHLBERG,
East Meadow, NJ



Flexible Glow-Plug Wrench

It's difficult to screw a glow plug into a deeply recessed head. Force a piece of rubber fuel line over the plug, and insert it in the hole. Turn it to make sure that it isn't cross-threaded, then pull the tube off and use a regular plug wrench to gently tighten the plug.

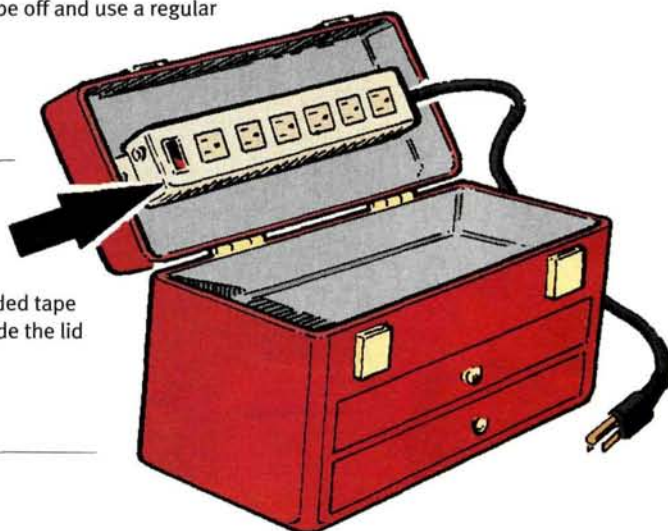
GREG KIPP,
Green Bay, WI



Portable Outlet Strip

To ensure that you'll have enough outlets of your own at the track, use Velcro®-brand fasteners or double-sided tape to attach a six-socket outlet strip inside the lid of your pit box.

JIM ZEIHNER,
St. Clairsville, OH





RRP

ROBINSON RACING PRODUCTS

TROUBLESHOOTING

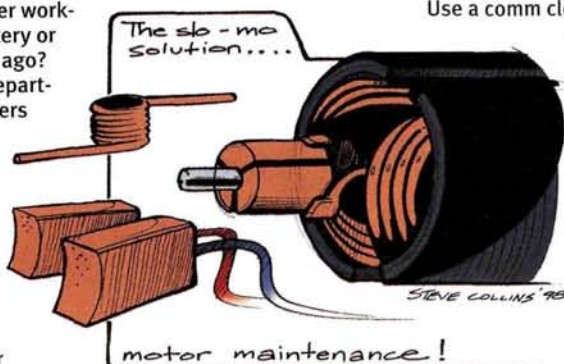
BY DOUG MERTES • ILLUSTRATIONS BY STEVE COLLINS

Slo-mo Motor

Your mag is awesome! I recently bought a Reedy 20-turn motor for my Associated T-2 truck, but now it doesn't always run. I've checked all of the connections to the receiver and the motor, and everything appears to be in order. Whenever I put in a new battery, the truck accelerates very slowly. Do you have any idea what's going on here? [email]

DANIEL FERREIRA

First things first, Daniel; is your charger working properly? Do you have a fresh battery or one that breathed its last two months ago? If everything checks out in the juice department, move on to the motor. Many racers and casual truckers opt to install more powerful motors, especially mild modifieds, because they offer increased performance without having to pay big bucks for batteries and support equipment. The Reedy 20-turn motor you've installed is a good example of this breed of better than stock powerplants, and is especially good if you intend to power your truck with sport-type battery packs.



Along with increased motor performance, however, comes a need to increase maintenance, especially of the brushes and commutator. Properly geared, a mild modified motor will still go through brushes quicker and require cleaning more often than the stock motor it replaced. My guess is that your brushes are worn out, you have a dirty commutator, some debris is stuck between the brush and the armature, or a combination of all three. Take out the motor and remove the brushes and brush springs.

Use a comm cleaner (like Trinity's* Comm Pen) to remove deposits from the brushes and commutator, and give the motor a squirt of aerosol cleaner to remove the gunk. If the brushes are noticeably shorter than a new pair, replace them. The motor may be so worn that its commutator might have to be cut. Have an experienced racer or someone at a local hobby shop or at the track look at your motor to determine whether the comm needs to be cut.

Put everything back together, and I think that your T2's performance will have returned.

Extreme Innovation From RRP.

New, Extreme Performance Options From THE GEAR SPECIALISTS!



Hard Nickel Plated Alloy Steel Pinions: In 48P, 12T thru 35T sizes. Precision cut, with extremely hard coating for long wear.



Silencer Series Pinions: In 48P, 12T thru 35T, and 64P, 16T thru 47T sizes. Machined from aircraft aluminum, lightened, then twice coated.



Absolute Series Pinions: In 48P, 16T thru 28T, and 64P, 20T thru 38T sizes. Super hard, lightened and cut to unmatched concentricity - super quiet!



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Hardened Steel Clutch Bell - New 14T: Precision cut from a single piece of steel and then hardened. Fits ALL Associated and MIP clutch shoes. RRP 2214.



Stealth Idler Gear: Machined from super-tough plastic, this gear fits all Associated Gas Trucks, T2 and B2. RRP 2212.



RC-10GT Steel Spurs: Cut from steel, this spur might outlast your truck. Available in 66T size, this gear comes with a rubber dampener and backing plate. RRP 236T



Titanium Stealth Top Shaft: Machined from a single piece of titanium, this super hard, super light top shaft will fit any Stealth transmission. RRP 1512.

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Need for Speed

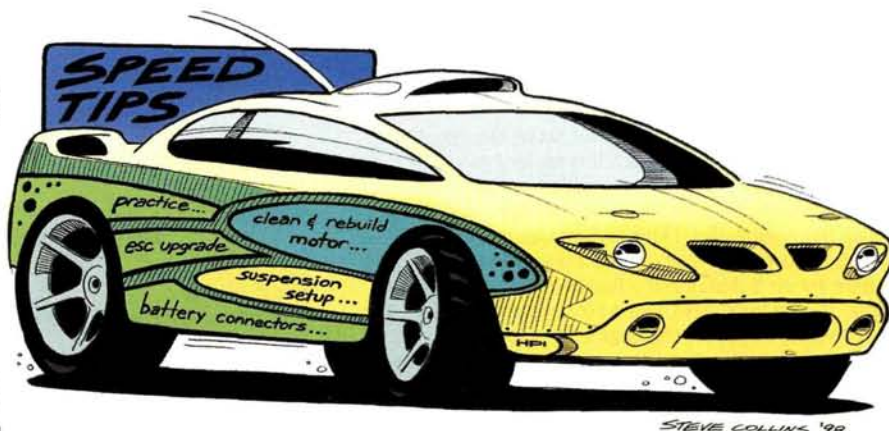
I got a 13 double modified motor a couple of weeks ago, and I have been gearing it using a 19-tooth pinion and 81-tooth spur gear. People at So Cal Raceway with 14 double motors fly right past me, even though they use the same gearing as I do! I have asked everyone if this is because of my motor or speed control (a Tekin Formula 10), but no one seems able to answer my question. Please help me, or I won't be able to show my face at So Cal anymore!

RYAN FREEMAN
Mission Viejo CA

Fella, there will always be people with lesser equipment who manage to outperform you on the track. I'd venture to guess that some experienced racers at So Cal run stock motors yet can easily show you their tail-lights! That's because there's a whole lot more to the performance equation than just the motor. Batteries, setup, suspension, tires and driving skill all play a part in the quest for ultimate velocity, and no one component is really more important than any other.

Having said that, however, many things can maximize performance on the track. For instance, you say that you got your new motor a few weeks ago. Might it need cleaning, or a rebuild? Modified motors run through brushes a lot faster than stock motors, so keep an eye on that.

That Tekin Formula 10 is a good speed control, but your motor may be taxing its ability to deliver current under a heavy load. If the speed control is very warm after a 5-minute run, it's time to move up to a more efficient one, or go back to the stock class. You don't say which



batteries you use, but the Formula 10 comes with bullet connectors for the motor and a Tamiya-style plug for the battery. If you still use Tamiya plugs on the batteries and ESC, upgrade to Deans* or Sermos* Powerpole connectors to reduce resistance. The same goes for the bullet connectors to the motor: replace them with hard wiring, if you can.

Let an experienced racer who does well on the track take a look at your tire and suspension setup to see whether you're in the ballpark, and ask nicely for guidance on this critical topic. And remember that the best investment you can make is practice time on the track. Ask the top guys how they get ready for racing, and they'll tell you: practice, practice, practice.

Extreme Performance For HPI.

New, Performance Enhancing Accessories For HPI Cars And Trucks!



HPI RS4 MT Lightened Slipper Plate: Includes Gold "Hard" pad for high traction conditions, and Brown "Soft" pad for low traction conditions. Helps prevent power/performance loss! RRP 1521.



HPI Titanium RS4 And Pro Tie Rods: Super strong, super light. 4mm RRP 1526. 3mm RRP 1525.



HPI RS4 And Pro Gear Adapter: Puts spur closer to the last supporting bearing on top drive shaft. RRP 1520.



HPI Black Absolute Spurs: These gears are so precisely cut that they represent the state-of-the-art in RC spur gears. Also included is a rubber dampener and an aluminum front plate. Available in 48P in 81T to 96T, and in 64P in 115T to 128T sizes.



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Sure-Fit™ Adjustable Ball Cups: Unique 8-point design minimizes contact point and reduces friction. Shanks have been "beefed-up" for extra strength. Fits all HPI cars and trucks. RRP 2013.



HPI Titanium Ball Studs: Super strong, super light. Available in short RRP 1522 and long RRP 1523 shanks. Fits all HPI cars and trucks. Hex is metric to fit stock wrench.

"For over 12 years, Robinson Racing has made the highest performing gears and accessories for available RC racing. The tradition continues!"

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RRP
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RRP

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TROUBLESHOOTING

Bubble Trouble?

First, I love your magazine. About six weeks ago, I bought a Traxxas Nitro Sport. It is my first gas-powered R/C car, and I ran into a problem with it pretty quickly. It runs well for about two minutes, and then the engine dies. I know why it won't run, but I don't know how to fix it. I think it dies because there are air bubbles in the fuel line. Would a fuel filter do the trick? Also, when I try to start it again, the fuel won't go into the engine; it reaches the carb and then shoots back to the gas tank. Do I have to replace any expensive parts? I hope not, because I'm just 12 years old and low on funds!

RYAN NEFF
Littleton, CO

The condition you describe (stalling after warmup) indicates that the fuel mixture is too lean (not enough fuel for the amount of air that is going into the engine). Nitro engines require a proper air/fuel mixture to get the best performance. In cases where the mixture is way off, the engine may never start, or it will stall after running for a few minutes.

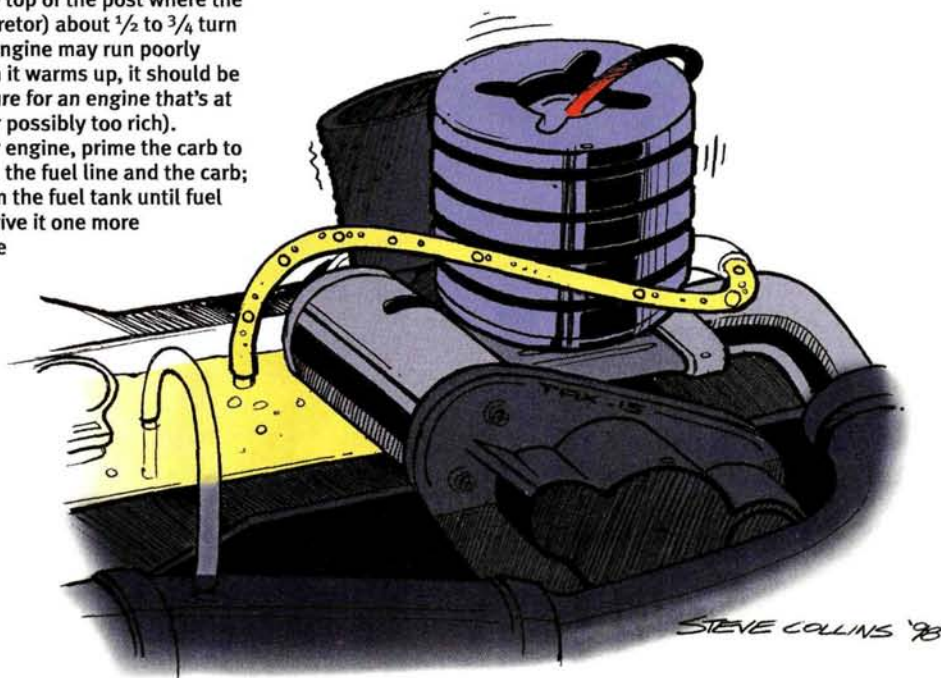
When the engine warms up, it's not able to draw as much air into it, and that reduces fuel intake. When not enough fuel goes into the engine, it will run poorly at higher speeds and may eventually stall. The real problem when there isn't enough fuel is that there also isn't enough lubricant, and that can cause severe engine damage!

The TRX-15 engine included in the Nitro Sport features an easy-to-adjust carb that has only one mixture needle (more sophisticated engines have two mixture needles). Turn this mixture needle (the black "knob" at the top of the post where the fuel goes into the carburetor) about $\frac{1}{2}$ to $\frac{3}{4}$ turn counterclockwise. The engine may run poorly when it's cold, but when it warms up, it should be closer to the ideal mixture for an engine that's at running temperature (or possibly too rich).

Before you start your engine, prime the carb to make sure that fuel is in the fuel line and the carb; pump the primer bulb on the fuel tank until fuel reaches the carb, then give it one more pump to get fuel into the engine.

Seven important points to remember when running a nitro engine

1. Always adjust the fuel mixture when the engine is at running temperature.
2. Always adjust the mixture from rich to lean.
3. If you're unsure whether the mixture is rich or lean, make sure it's rich by slowly turning the needle counterclockwise until the engine barely runs.
4. When you are sure the engine is running rich, begin to lean the mixture (turn the mixture-needle knob clockwise) only $\frac{1}{8}$ turn at a time, and run the engine about one minute between adjustments.
5. When you reach a mixture setting that provides the best engine performance, turn the needle back about $\frac{1}{8}$ turn for a little extra "cushion."
6. The fuel mixture always needs adjustment. An ideal mixture setting when the outside temperature is 80 degrees is entirely different from when it's 60 degrees.
7. Before messing with any of the above, make sure your fuel lines and fuel tank are in good shape (no tears or cracks) and that they are properly connected.



*Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■

NASCAR Detailing

NASCAR oval racing is by far the most popular motor sport in the U.S. High-speed, door-to-door action and colorful paint jobs are the main attractions, and because the cars are based on the vehicles we drive daily on the highways, they're easy for us to identify with.

To catch the excitement of the new race season, I decided to re-create several of the most popular race-team paint schemes. I wanted to produce a whole fleet of 1/10-scale NASCAR look-alikes, but I decided it would be equally challenging (and much cheaper) to combine the paint jobs on one vehicle. And since no car would be concours-worthy without a convincing driver figure, I painted and installed a custom interior as well.

A PUZZLED LOOK

Because I'm a big Chevy fan (more like fanatic), I chose Protoform's* Monte Carlo shell (no. 1209R). Great scale looks and meticulous detailing make this a good choice for R/C modelers of all skill levels. Combined with today's excellent bodies, the available high-quality R/C-vehicle graphics make duplicating the cars of your favorite NASCAR hot shoes as easy as spraying on a few coats of paint and applying stretchy vinyl decals.

I chose an interesting mix of Autographics* and Slix* decals; both companies top the list for their great selections and high-quality materials. I also used Roland's* Stika STX-7 vinyl cutter to produce the graphics that aren't available commercially.

PUTTING DOWN PAINT

When planning a paint scheme, good reference material is the key to accuracy and is as close as your supermarket



What if several successful race teams combined forces to create a hybrid team? The car would look like a rolling NASCAR puzzle! The big question would be: who gets to drive?



Check that close-up view on full-scale racers; their headlights are vinyl decals. By the end of a race, the paint on the front end of these stockers looks as if it has been sandblasted by dirt, and it's covered with tire debris. The "Parts America" hood graphics and lettering decals are not commercially available; I made them using Roland's Stika STX-7 vinyl cutter.

magazine rack. Full-scale racecar publications are an excellent source of

pictures that will help you replicate paint jobs, logos and decal placement.



On full-size racers, the sponsor decals aren't always so neatly clustered. They often overlap and sometimes run into the wheel wells. I trimmed the sponsor logos to help create the patchwork illusion.



Each section of "sheet metal" is joined by simulated rivets. Use the Autographics Mini Sheet here. Pactra's Bright Yellow duplicates Kodak's—the perfect shade. Racing gets pretty close; drivers often finish with tire marks on the sides of their cars. To get the same effect, use a permanent-ink pen to trace the outline of tire or a similar round object on the side of the body. Rubbin's racin'!



Notice the tape under the car's number; this lets the jack man on the pit crew know where he should position the tire jack on the frame. For the sharp-looking window molding, use Pactra's trim-striping tape; overlap it at the corners, and trim off the excess to make it clean and square. On big racers, the front windshield is 1/4-inch-thick Lexan that's held in by small clips. Make your "clips" out of short pieces of trim tape. The small simulated rivets around the molding were done with a permanent-ink silver pen.

You'll Need

AUTOGRAPHICS

- Mr. Goodwreck, Goodwrench/companion sheet—part no. 170-3/827.
- Kodak no. 4—170-4.
- Corn Flakes—170-5B.
- Western Auto no. 17/companion sheet—170-17/647.
- Interstate 18—170-18.
- Du Pont no. 24—170-24A.
- Schrader no. 25/companion sheet—170-25A/824.
- Mini sheet—10854.
- Brushed-aluminum trim sheet.

SLIXX

- Du Pont Monte Carlo no. 24—2053-RC9824.
- Kodak Monte Carlo no. 4—2039/RC9704.
- Kellogg's Monte Carlo no. 5—2035/RC9705.
- Interstate Pontiac no. 18—2058/RC9818.
- Goodies sheet (stock-car grilles, headlights, Chevy/Ford logos—2026/RC97SG).

PARMA

- Universal interior set—1023.

HPI

- Decal sheet (dashboard gauges and switches)—9133.

Painting Tips

1 For the best results, use the right paint for the right application: on the interior, use paints designed for polystyrene; these are usually enamel based.

2 Use good-quality paintbrushes in several sizes. There's nothing worse than having a paintbrush lose its hair all over your project! For most jobs, the no. 0, 1 and 2 brushes are good; Q is the smallest. After using them, clean your brushes with paint thinner and they'll last longer.

3 Plan your paint sequence. On polycarbonates, apply darker colors first whenever you can. You'll avoid creating weird shades caused by paint bleed-through. If you must apply light colors first, back them up with several coats of white or silver. When painting polystyrene, apply light colors first.

4 Spray larger areas and use a brush for smaller areas and detailing. Use good-quality masking tape to help reduce overspray clean-up later. Allow sufficient drying time for enamel paints. As a rule, light coats require approximately an hour to dry completely while heavier coats may take up to two hours. Certain paints have to cure overnight before you apply more coats. When in doubt, wait longer!

5 Fluorescent colors are semitransparent, so they must be backed with white to make them opaque (solid). Candy and metallic colors are also semitransparent; back them with silver or gold.

6 Always paint in a well-ventilated area. When using spray cans, always wear a particle mask to avoid inhaling paint particles and fumes.

Before you begin, think about the sequence in which you should apply the colors. Whenever possible, I apply darker colors first; in this case, I masked everything off except for the left rear quarter panel that I sprayed with three coats of Pactra's* Outlaw Black. This is the "Goodwrench" section of the car.

Using Pactra paints throughout, next,

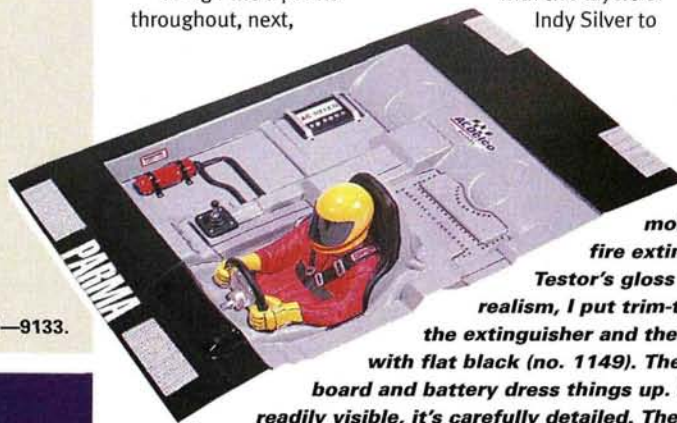
was masked off, leaving the surrounding area to be sprayed with Daytona Yellow, which I backed with several coats of white to prevent the green from showing through when I painted the stripe. Use fluorescent green or Rally Green on the stripe.

The left front panel is metallic blue. Apply three or four coats, then back it with two layers of Indy Silver to

polystyrene instead of the polycarbonate used for clear bodies.

I used flat gray Primer (no. 1237) on the main part of the interior and flat black (no. 1149) for the steering wheel, battery, hydraulic lines, etc.; the fire extinguisher is gloss red (no. 1103). Fabric rarely has a shine, so I used flat colors to paint the driver: flat yellow (no. 1169) on his suit and flat red (no. 1150) on his gloves.

For the fine lines, I used a Parma detailing



There's a ton of detail molded into the interior. The fire extinguisher was painted with Testor's gloss red (no. 1103). For extra realism, I put trim-tape hold-down straps on the extinguisher and the battery, which I painted with flat black (no. 1149). The small decals on the dashboard and battery dress things up. Even though this area isn't readily visible, it's carefully detailed. The dashboard gauges and switches came from an HPI decal sheet (no. 9133), and the panel they're mounted on is a piece of Autographics "brushed aluminum" sheet. These new trim sheets are made from real metallic material.*

I painted the right rear panel—the "Bud" portion—with three coats of Racing Red. To get the correct shade, I applied three coats of Blue Streak on top of the red. For the "Interstate Battery" no. 18 paint scheme, I sprayed Flo Green on the roof. To make fluorescent colors opaque (solid) and prevent other colors from showing through them, they must be backed with fluorescent white or Sprint White.

I did the "Rainbow Warrior" front quarter panel next. Spray on fluorescent orange or Competition Orange. There's no need to try to paint on the rainbow stripes; just use Slxx decals set no. 2053/RC9824 to complete the graphics here.

The driver's door carrying the "5" and the wrap-around green stripe was next on my list. The stripe

produce the correct metallic effect. The right no. 4 "Kodak" door took four coats of Bright Yellow. This is a nearly perfect match—and the closest I've found in a can—to the distinctive Kodak yellow.

Finally, I sprayed the hood for the "Parts America" car with four coats of Sprint White, which I backed with silver to increase its opacity.

THE INSIDE STORY

Parma's* interior set (no. 10203) adds realistic inside details to my split-personality racer. The Parma set is "universal," so it can be trimmed for a good fit under most 1/10-scale bodies. A separate parts tree includes a driver's helmet, a steering wheel, a shifter and strips of Velcro®-brand fastener for mounting. I used Testor's* enamel paints on the white plastic pieces, as the kit is molded of

pen (no. 10400) and a silver, permanent-ink pen. The driver's helmet is gloss yellow (no. 1214), and the stripe is red trim tape. I cut a piece of black MonoKote* to simulate the tinted face shield.

Finally, remember that some concours events require the car to be race-worthy, so make sure the interior doesn't interfere with any moving parts or electronics.

FINISH LINE

With this paint scheme, I honor all of my NASCAR heroes. One thing is for sure, if you show up at the track with a unique car like this one, people will most likely remember its paint job long after they've forgotten your name or face!

Until next time: play fair and have fun!

**Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■*



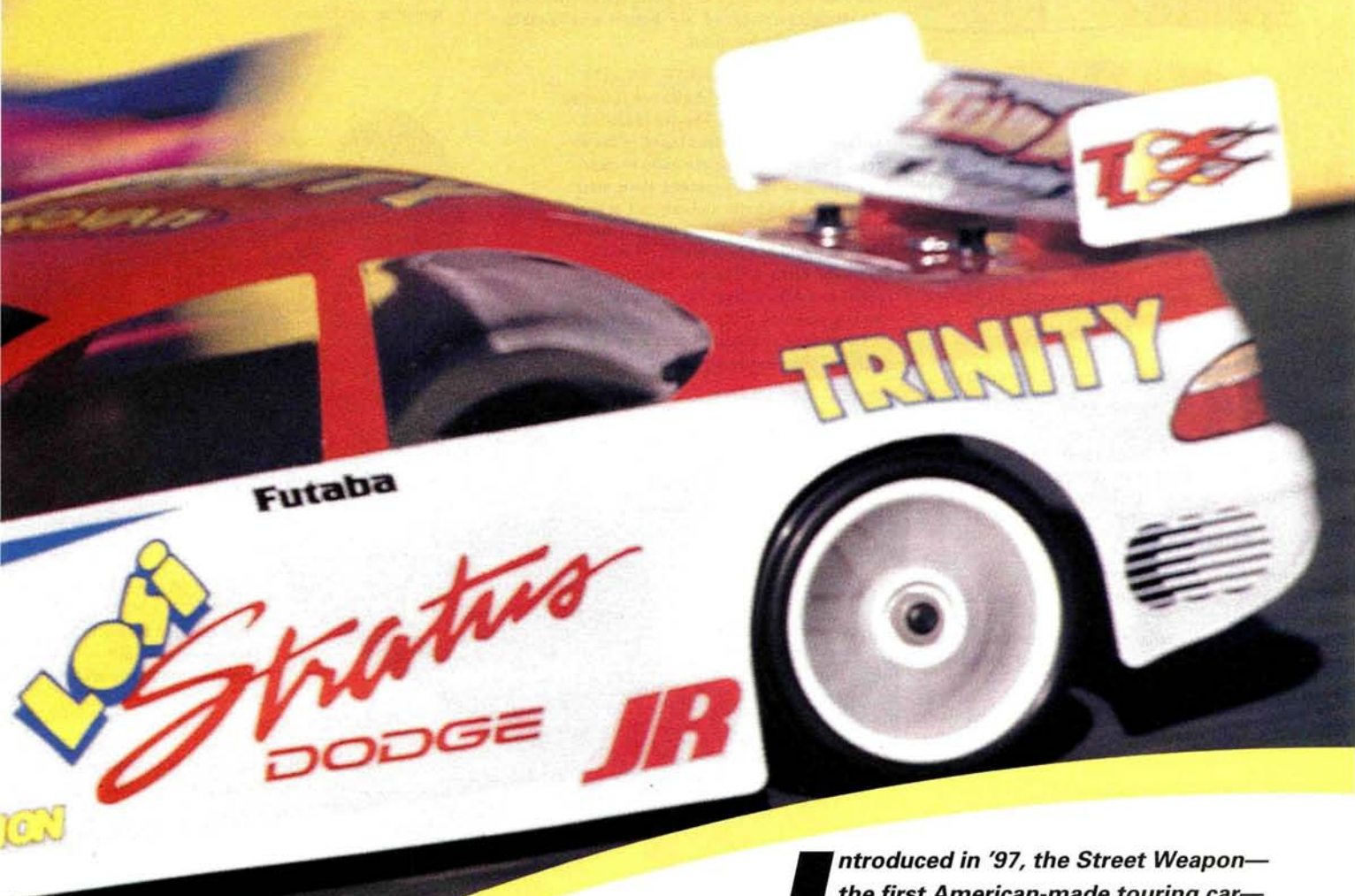
Team Losi **IWC Street Weapon**



THE WORLD CHAMP'S
**WEAPON OF
CHOICE**

by Steve Pond

PHOTOS BY WALTER SIDAS



Introduced in '97, the Street Weapon—the first American-made touring car—took a fair amount of criticism as an off-road car that had been made into a touring car. The critics said that it would never work, since it hadn't originally been designed to run on smooth, touring-car tracks. Many of the early touring cars started as off-road vehicles, but the Street Weapon (SW) was introduced when the market was shifting toward "purpose-built" vehicles that had been designed from the ground up as full-suspension road racers. Amid the distraction of the '97 off-road World Championships and the pressure of getting its touring car to market, Team LoSi* released the first version of the SW. In part, it confirmed the suspicions of its critics because it had the same front-suspension geometry as the XX4—20 degrees of front caster. This enabled it to handle bumpy surfaces well, but limited its ability to deliver the lightning-quick steering response that we had come to expect. Added to this was the popular myth that its 3-belt drive system was less efficient than the conventional 2-belt system used in other cars; it all added up to a lukewarm response.

The IWC (IFMAR World Cup) Edition Street Weapon (modeled on the "all the hop-ups in one box" concept pioneered by LoSi's Graphite Plus truck and Kinwald Edition buggy), represents over a year and a half of design refinement. It has all of the optional race-bred parts that were developed during the same period, and it has enjoyed more racing success than any other car on the market. It won at the Worlds warm-up, the ROAR National Championship and the Cleveland U.S. Indoor Championship, and it dominated the IFMAR World Cup (hence the "IWC"). The IWC Edition is a replica of the car David Spashett used to sweep the IFMAR World Cup.

TEAM LOSI IWC STREET WEAPON



s p e c s

SCALE 1/10
LIST PRICE \$499.95

DIMENSIONS
Wheelbase 10.08 in. (256mm)
Width (F/R) 7.40/7.46 in.
(188/189.5mm)

WEIGHT
Gross, RTR 53.9 oz. (1,528g)

CHASSIS
Type Molded tub
Material Graphite composite

DRIVE TRAIN
Type 3-belt
Primary Pinion/spur
Drive shaft Universal joint
Differential(s) Ball
Slipper clutch None
Bearings/bushings Bearings

SUSPENSION (F/R)
Type Lower A-arm w/adjustable upper link
Damping Oil-filled coil-over w/threaded bodies

WHEELS
Type One-piece molded plastic
Dimensions (DxW) 2x1 in. (50.8x25.4mm)

TIRES
Front/rear Losi LST S-01 blue-compound slicks

ELECTRICS
Not included

WIDE-TRACK WHEELS WITH BLUE-COMPOUND LOSI LST S-01 TIRES AND FIRM INSERTS

The wide-track wheels have less offset than the older wheels, and that widens the car to just about the 190mm IFMAR limit.

2.5-DEGREE REAR HUBS

New hub carriers give the IWC car more side bite than the old 0-degree rear hubs. They scrub a little straightaway speed, but there is a noticeable improvement in handling.

HIGH-EFFICIENCY BELTS

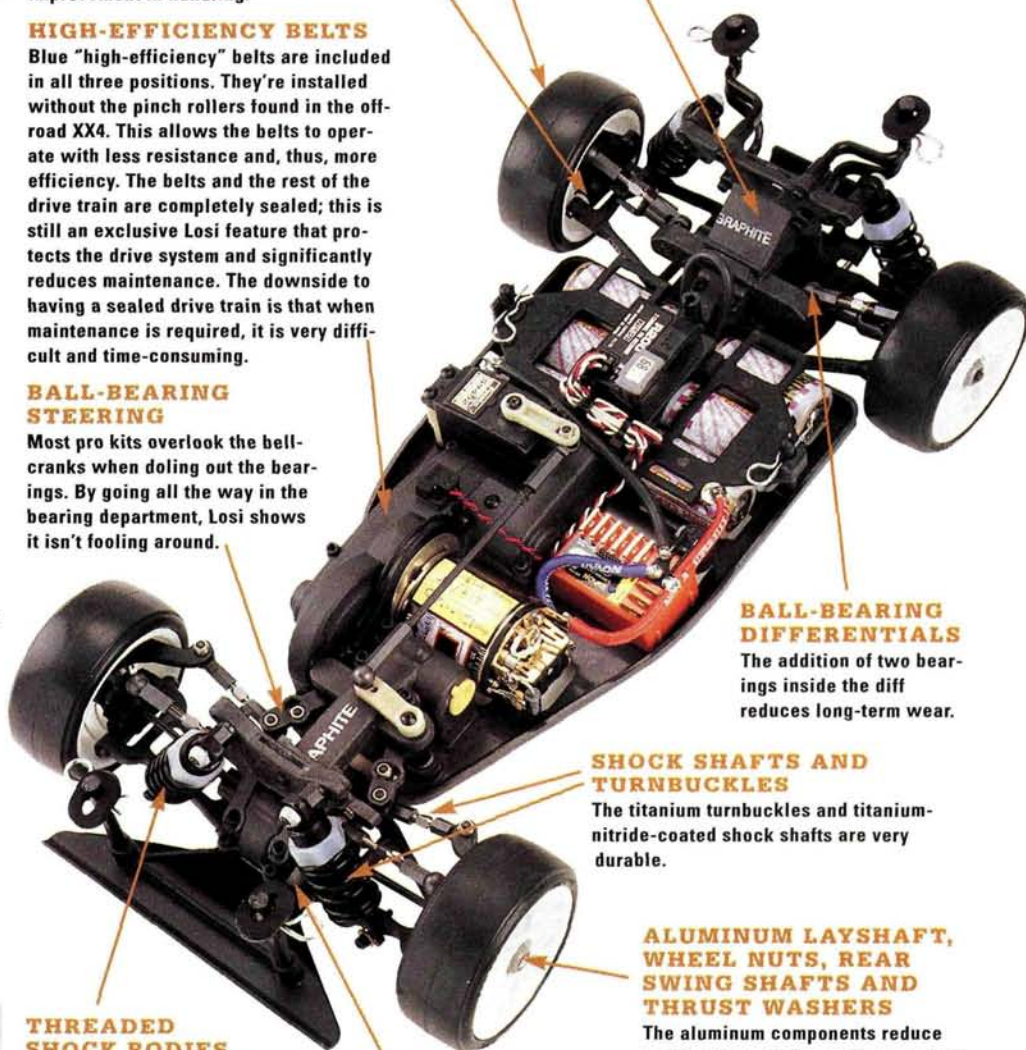
Blue "high-efficiency" belts are included in all three positions. They're installed without the pinch rollers found in the off-road XX4. This allows the belts to operate with less resistance and, thus, more efficiency. The belts and the rest of the drive train are completely sealed; this is still an exclusive Losi feature that protects the drive system and significantly reduces maintenance. The downside to having a sealed drive train is that when maintenance is required, it is very difficult and time-consuming.

BALL-BEARING STEERING

Most pro kits overlook the bell-cranks when doling out the bearings. By going all the way in the bearing department, Losi shows it isn't fooling around.

GRAPHITE CHASSIS COMPONENTS

Low-CG, graphite chassis plate, bulkheads/shock towers, suspension arms and belt covers replace many of the stock plastic pieces for a more rigid platform. A lowered motor plate rounds out the list of low-CG components. The chassis plate has tape slots for the ultra weight-conscious (tape is required on the left side for the forward battery-mounting position).



BALL-BEARING DIFFERENTIALS

The addition of two bearings inside the diff reduces long-term wear.

SHOCK SHAFTS AND TURNBUCKLES

The titanium turnbuckles and titanium-nitride-coated shock shafts are very durable.

ALUMINUM LAYSHAFT, WHEEL NUTS, REAR SWING SHAFTS AND THRUST WASHERS

The aluminum components reduce rotating mass and overall mass, and that means quicker acceleration and better handling.

THREADED SHOCK BODIES WITH 25.0-RATE BLACK SPRINGS

The threaded shock bodies permit fine adjustments of spring preload and eliminate the need for preload spacers. The threaded collars are made of molded plastic that "grabs" the shock body and prevents the collars from working loose and fouling the adjustments.

FRONT BULKHEADS

Zero and 10-degree front bulkheads are included for more tuning options. When combined with the 3-degree hub carriers, they provide 3, 7, or 13 degrees of caster. The 13-degree option won't see much use, but I found the 7-degree setting useful on asphalt and the 3-degree setting useful on carpet.

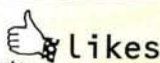
YOU'LL NEED

- High-quality 2-channel radio with receiver.
- 6-cell battery.
- High-speed steering servo.
- CA glue for tires.
- Competition ESC.
- Foam bumper.

FACTORY OPTIONS

- Foam bumper—part no. A-4231.
- Aluminum main shaft—A-9936.
- Profiled soft-foam tire inserts—A-7798.
- Losi LST S-01 touring-car slicks (white/red compound)—A-7701W/A-7701R.
- Losi LST S-11 treaded intermediate tires (white/blue/red compound)—A-7711W/A-7711B/A-7711R.
- Hard-coated aluminum suspension balls—A-9940.
- Titanium ball studs (0.188/0.250/0.380in.)—A-9945/A-9946/A-9947.
- 1-degree "CR" rear-hub set—A-9806.

- Includes ALL high-performance racing parts.
- Race-ready (as in "World Champs-ready") out of the box.
- Excellent setup info and tips.
- Sealed drive train needs very little maintenance.



Likes



dislikes

- Foam bumper isn't included.
- When maintenance is required—a belt- or spur-gear change, for example—it's a royal pain in the posterior! The chassis must be stripped of almost everything!

TEST GEAR

Novak* Cyclone programmable ESC • Trinity* D3.5 12x4 modified motor, Trinity Paradox Pro stock motor (not shown) • JR Racing* R-1 radio system • Futaba* S-9402 steering servo • Trinity VIS Matched 2000mAh batteries

PERFORMANCE

There's not much I can tell you about the IWC Edition that hasn't already been told on the track. With wins at almost every major touring-car event, the Street Weapon has taken its place at the top in the most hotly contested racing class.

The stock setup of the IWC Street Weapon is as race-ready as you can get. It has a confidence-inspiring feel, and you know that you can put it anywhere on the track. It works very well on an average asphalt track with the stock blue-compound tires. I installed a set of TRC* foam tires for the carpet runs (purple compound in the front, pink compound in the rear), and the car was equally impressive. I installed the light rear swaybar to take a little bite out of the car, but other than that, I stayed very close to the baseline setup.

Many of the team drivers prefer to place the left side of the saddle-pack battery in the forward position for sharper steering response, but I was very happy with the slightly softer response when the batteries were in the rear (and I didn't have to fuss with battery tape).

FINAL THOUGHTS

There isn't much more that I can add that the IWC Street Weapon—at least in prototype form—hasn't already said for itself. It's the dominant car at the highest levels of competition, and my experience only further cements the point that this is the most dialed touring car currently available. It has held its own against the top driving talents

Top: the low-CG graphite-composite chassis positions the batteries and the motor as low as possible. Notice the white front bulkhead; for greater flexibility, the IWC car comes with 0-degree and 10-degree front bulkheads.

Bottom left: graphite everywhere! In addition to the graphite parts, the IWC car has titanium turnbuckles and threaded shock bodies with heavy black springs.



Standard equipment includes a set of Losi LST S-01 blue-compound touring-car slicks. For great traction on clean asphalt and carpet, TRC now offers mounted foams.

AT WHAT COST PERFORMANCE?

At higher levels of competition, local and international, you'll often find out-of-the-box racecars fitted with some of the trickiest aftermarket stuff available—titanium this, graphite that, ball bearings there, etc.; you get the picture. Let's face it: some of us just don't want to risk being outclassed in the equipment department.

If you're nodding in agreement right now, you're the type of person for whom the IWC Edition Street Weapon was designed. This car is the latest in Team Losi's "all-the-trick-stuff-in-one-box" line—a line made popular by the Graphite Plus truck and the Kinwald Edition buggies. Granted, it tops the touring-car price chart, but you may be surprised to find out what it would cost to get to this level of "trickiness" if you started with a standard kit. To illustrate my point, the list below shows the Street Weapon's additional features and how much each would cost if you bought them individually.

PARTS	PART NOS.	AVG. PRICE
Slotted graphite chassis	A-9917	\$66.95
Zero-degree bulkhead	A-9730	\$6.00
Reversible 3-degree caster blocks	A-9732	\$5.50
Graphite shock towers (F/R)	A-9740/A-9840	\$23.00
Graphite suspension arms (F/R)	A-9738/A-9838	\$21.90
Threaded shock bodies (2 pair)	A-5053	\$39.90
Titanium-nitride shock shafts (4)	A-5059	\$28.00
Ball-bearing steering	A-6914	\$17.95
Lowered motor plate	A-3226	\$7.00
2.5-degree rear hubs	A-9805	\$6.50
25.0-rate springs (black, 2 pair)	A-5110	\$5.00
Differential ball bearings (2)	A-6907	\$13.00
Blue high-efficiency drive belts (front/side)	A-3207	\$14.00
Blue high-efficiency drive belt (rear)	A-3206	\$10.00
Aluminum layshaft	A-9934	\$7.50
Aluminum wheel nuts	A-6303	\$2.50
Aluminum rear swing shafts (2)	A-9927	\$19.90
Swaybars (F/R)	A-4150	\$13.95
Wide-track wheels (2 pair)	A-7803	\$12.00
LST S-01 Slick touring tires (blue, 2 pair)	A-7701-B	\$13.95
Aluminum bearing spacers	A-9941	\$9.95
Dodge Stratus body	A-8054	\$21.95
Titanium turnbuckles	NA	\$19.95
Street Weapon touring-car kit w/bearings	A-0200	\$210.00
Complete tuning instructions	NA	Priceless

TOTAL \$596.35

If you intend to end up with a fully clamped Street Weapon, it should now be quite clear that it's best to go for the IWC Edition. Even though it's at the top of the price list for touring cars, if you start with a standard kit and add all the goodies, you'll spend about \$300 more! So if you already own a standard kit and think it will be much cheaper to add all the parts that are standard, you're wrong. The IWC Edition Street Weapon includes all the parts listed above and costs around \$300—just \$90 or so more than the cost of a standard kit!

BUILDING & SETUP TIPS

This preproduction kit was assembled by Team Losi and that saved me some time in getting to the track. The number of included graphite parts prompts me to caution you not to be overzealous when screwing anything into them. The extra effort required to screw anything into the graphite composite makes it easier to strip fasteners and break screws, so slow down; you'll have plenty of time to go fast on the track! Installing the screws is much easier when you apply Trinity's assembly lube to all of them.

Included in the kit are the most comprehensive race-tuning instructions I've ever seen. They thoroughly explain the effects of each adjustment and describe which adjustments you should make for particular track conditions. The setup sheet has the baseline setup on one side and is blank on the other side for your notes. Use this setup and follow the instructions for tweaking the car, and you'll have the most dialed Street Weapon on the track!

■ Front suspension

Toe-out
Steering bellcranks (center link)
Ride height
Camber
Caster (asphalt/carpet)
Swaybar
No. of washers (steering hub)
Pivot hole in carrier
No. of washers (hub carrier)
Lower shock mounting position
Upper shock mounting position
Upper link mounting position (inside)

0.5 degree
Inner
3/16 inch (5mm)
-1.5 degrees
7/3 degrees
None
None
Bottom
None
Outside
No. 2 hole
No. 1 hole

■ Front shocks

Oil
Piston
Spring
Limiters (inside/outside)

Losi 80WT silicone
No. 60
Losi Black
0.060 in. "B" spacer

■ Rear suspension

Toe-in
Ride height
Camber
Pivot support
Swaybar
Upper link mounting position
Upper shock mounting position
Lower shock mounting position

2.5 degrees per side
3/16 in. (5mm), 1/4 in. (7mm) for more steering
-0.5 degree
No. 2
No (for medium bite), yes (for high bite)
Outside "C," inside "5-5"
No. 3 hole
Outside

■ Rear shocks

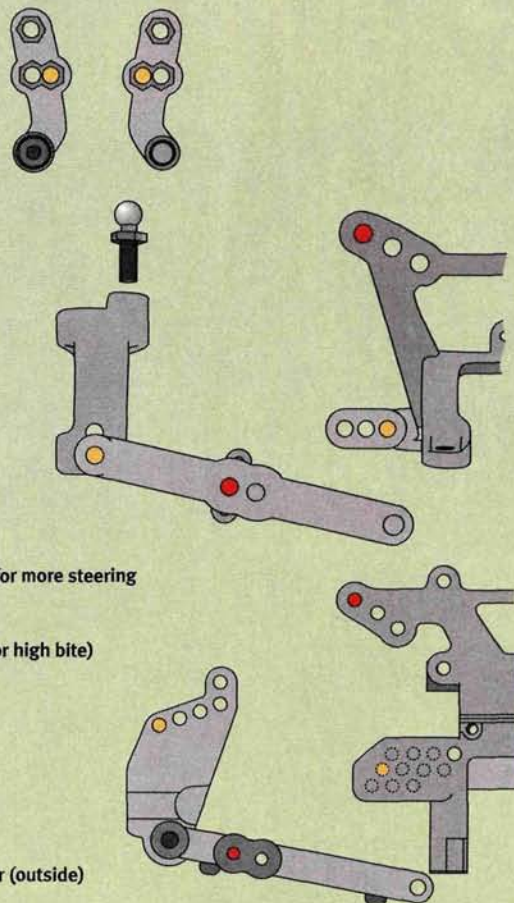
Oil
Piston
Spring
Limiters

Losi 80WT silicone
No. 56
Losi Black
0.030 in. (inside), "B" spacer (outside)

■ Miscellaneous

Tires (F/R)
Inserts
Clicker adjustment
Battery placement (carpet/asphalt)
Motor
Pinion (mod/stock)
Spur (mod/stock)

Team Losi Intermediates (blue compound)
Losi Firm
Locked (tight for high-bite tracks)
Front/rear
Trinity D3.5 12x4, Trinity Paradox
19 to 20/23 to 25
82/78



around the world. By virtue of its win at the Cleveland U.S. Indoor Championship—where all the touring cars ran stock motors—it has also dispelled any myths about the efficiency of its drive train.

It's true that the IWC Edition is at the upper end of the price spectrum (about \$299 on the street), but for all-out racing,

it offers the best value. For the racer who intends to get every possible advantage by using hop-up parts, the car's total price is considerably less than if you were to purchase all of the extra goodies separately.

There's not much more to say, other than "get one" if all out-performance is your goal. There are other capable touring cars, but none have the Street Weapon's

winning record in the most hotly contested events of the year. Sure, its critics could still be out there saying, "It's the drivers," or "It's the motors and batteries." All of these other elements contribute to a winning effort, but in my humble opinion, "It's the car!"

*Addresses are listed alphabetically in the Index of Manufacturers on page 225.

THE COMPETITION

	Team Losi IWC Street Weapon	HPI RS4 Pro	Yokomo YR4M2 USA	FSR Bullet	Kawada SV-10 Alcyon	Tech Racing Voggerd GT	Schumacher SST 99
Wheelbase	10.08 in. (256mm)	10 in. (254mm)	9.94 in. (252mm)	10.03-10.2 in. (255-259mm)	10 in. (254mm)	10.2 in. (260mm)	10 in. (254mm)
Width (F/R)	7.40/7.46 in. (188/189.5mm)	7.25/7.125 in. (184/181mm)	7.19 in. (183mm)	7.2/7.5 in. (183/191mm)	7.3 in. (185mm)	7.25 in. (184mm)	7.25 in. (184mm)
Diff type	Ball	Ball	Ball	Ball	Ball	Ball	Ball
Chassis	Graphite composite	Graphite	Graphite	Graphite	Graphite	Graphite	Fiberglass
List price	\$499.95	\$329	\$380	\$425	\$399	\$399	\$369
Available at*	\$299.95	\$260	\$229	\$265	\$294	\$259	\$225
Reviewed in	03/99	10/97	11/98	3/98	10/98	1/99	—

*Prices vary with location

Although there are many types of vehicles in the R/C universe, there are always certain niches that aren't quite filled. Classic hot-rods fall into that category. Although bodies have long been available to transform pan cars into street machines and Parma's Hemi Coupe remains popular, full-suspension R/C 'rods that can play rough have been few and far between. If that sounds like the type of car you'd like to own, then MRC[®]/Academy's latest release is for you. By combining off-road technology with some serious street rubber and a swoopy shell, the Q-Tee Coupe appears poised for potent on-road performance.

MRC/Academy Q-Tee Coupe

by Peter Vieira





Don't call me cutey!

MRC/ACADEMY Q-TEE COUPE



s p e c s

SCALE 1/10
"STREET" PRICE \$160*

DIMENSIONS
Wheelbase 10.9 in. (275mm)
Width (F/R) 9.8/10.9 in.
(248/276mm)

WEIGHT
Gross, RTR 66 oz. (1,871g)

CHASSIS
Type Double-deck plate
Material Fiberglass/plastic

DRIVE TRAIN
Type Belt
Primary Pinion/spur
Drive shafts Dogbones
Differential(s) Bevel gear
Slipper clutch None
Bearings/bushings Both

SUSPENSION (F/R)
Type Lower A-arm/
adjustable
upper link
Damping Oil-filled shocks

WHEELS
Type Molded one-piece
Dimensions (DxW) 56x33/56x51mm

TIRES
Type Rubber street tread

ELECTRICS
Motor 20-turn, 540 type
Battery Not included
Speed control Mechanical w/reverse

* Price varies with location

YOU'LL NEED

- 2-channel radio.
- Two standard servos, or one servo and ESC (preferred).
- Stick-type Ni-Cd battery pack.
- Battery charger.
- CA glue.
- Polycarbonate-compatible paint.

FACTORY OPTIONS

- Composite parts
- upper deck—part no. WY-17.
 - main chassis—WY-43.
 - front shock tower set—WY-22.
 - rear shock tower set—WY-23.
 - 15x10mm ball bearings (set of 4)—WY-44.

DUAL BELT DRIVE TRAIN

The Q-Tee's mid-mounted motor spins a pair of layshaft-mounted pulleys, which in turn spin the front and rear gear differentials. In an unusual departure from the dual-belt model established by touring cars, the Q-Tee routes its belt beneath the battery and incorporates a tension pulley on the motor plate. The rear belt is completely enclosed by the rear diff housing, and this makes it difficult for pebbles or other debris to damage the belt. The diffs feature oversize bevel gears and well-sealed cases; unless the Q-Tee gets caught in a flood, the diffs should last the life of the car without maintenance. Bushings are used in the hubs, but the diffs and layshaft are equipped with shielded ball bearings.

ADJUSTABLE SUSPENSION

Threaded links allow front and rear camber and front toe to be adjusted. The lower A-arms are quite wide, but the front rims' deep inward offset serves to narrow the front track. The arms have an unusual downward curve and only one position for the lower shock; however, the fiberglass shock towers offer five holes for each upper mount.

20-TURN MOTOR

It doesn't look like much, but the included, sealed-endbell motor is potent enough to move the relatively hefty Q-Tee at a good pace. There's plenty of torque for off-road use, and the top speed is respectable, especially when you consider the Q-Tee's bulk and its over-wide tires. The motor is mounted on a cast-metal plate that helps to dissipate heat and further stiffens the chassis.

FIBERGLASS CHASSIS

The Q-Tee is built on a 4mm slab of black fiberglass and is slotted to accept saddle packs. It is highly unlikely, however, given the kit's intended buyer, that saddle packs will be used. Molded cradles accommodate a stick pack, and zip-ties secure it. Although functional, the old-tech ties are frustrating to use and allow the pack to migrate. A molded upper deck provides a home for an included 3-step mechanical speed control (which I eliminated in favor of a KO Propo Legato ESC) and effectively stiffens the lower chassis plate. A threaded rod braces the rear of the chassis.

MONGO TIRES

Everybody who sees the Q-Tee loves its extra-wide steamroller tires and their scale-looking tread pattern. The relatively soft tires are not supported by foam inserts, but traction does not suffer; with so much rubber on the road, the Q-Tee sticks to just about anything. Mirror-finish, dished rims complete the rolling stock.

COMPOSITE OIL-FILLED SHOCKS

The dampers are made of a harder, stiffer plastic than the kit's other molded parts, and this contributes to their smooth operation. Spare pistons for tuning are included, and silicone oil of unspecified weight is supplied. The blue shock collars lend the shocks an undeserved toy-like quality; I think I'll dye mine black.

BUILDING & SETUP TIPS

The Q-Tee's manual is very good, and even first-time modelers should not have any difficulty. Here are the steps where a little extra care may prevent headaches:

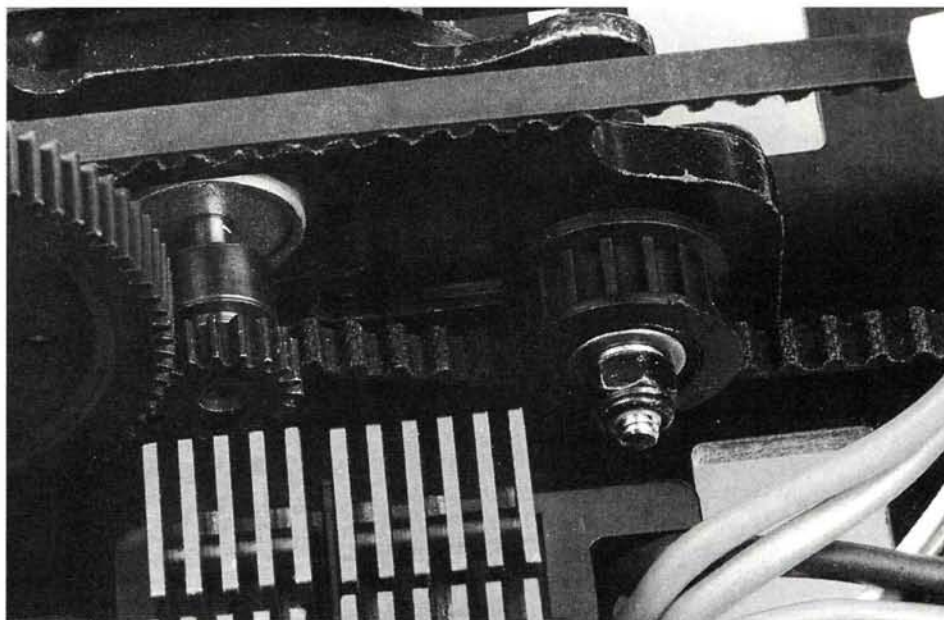
- Step 1. Go easy on the glue when you install the diff flanges, or it will run between the pulley teeth.
- Steps 2 and 5. Use a little Loctite* on the grub screws that retain the diff outdrives. When you're out in the dirt playing around, imagine the trouble you would have if you lost the grub screw, and you'll be glad you used the Loctite.
- Steps 4 and 7. These steps call for the installation of unusual pivot balls in the fiberglass shock towers. Instead of being tightened against a flange or a jam nut, the pivot balls have a tapered shoulder that is forced into the pivot-ball hole. It works, but the shock tower may split if the pivot ball is overtightened; I had to fix a cracked tower with CA after I gave one pivot ball an ill-advised extra twist. Go easy.

TEST GEAR

Hitec* Lynx AM transmitter and receiver • KO Propo* Legato reversing ESC • Hitec S300 servo • Trinity* Amp Max II 1500mAh battery.

PERFORMANCE

With its long-travel suspension and 4WD power train, the Q-Tee begs to be driven hard, but the full-fendered body rubs the front wheels when cornering. I was able to fix the problem by adjusting the front shock's preload spacers so the suspension had no "sag"; up-travel limiters could also be added to the shock shafts, since the front suspension still has enough travel to rub the fenders under full compression, but the Q-Tee doesn't see that much suspension travel on-road. Although I expected a little more speed from the supplied 20-turn motor, the car was quick off the line and had plenty of low-end torque. On pavement, the coupe's wide tires offered far more traction than required by the available horsepower, and that made driving a point-and-shoot affair. The tires simply won't brake loose, but the body does roll nicely on the sup-



Here, the cast motor plate and tension pulley are visible behind the heat sinks of the KO Propo Legato ESC.

- One-of-a-kind looks.
- Plenty of traction on just about any surface.
- Well-protected differentials.
- Thick metal motor mount.

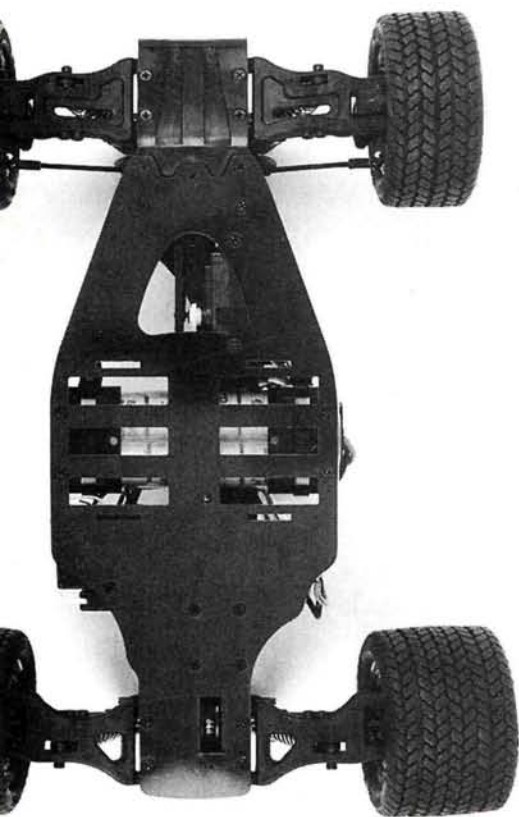


Likes

- Drive train is loud.
- Left front outboard drive cup broke.
- Anachronistic zip-tie battery holders.



dislikes



Above: this bottom view of the Q-Tee shows off its six battery slots and the large relieved area in the forward area of the chassis. **Note the separate nose/skidplate.** **Right:** the Q-Tee's unusual suspension arms are curved slightly. The shock towers offer an assortment of shock-mounting points.

ple suspension; it's always fun to see the laws of physics doing their thing. The wide tires float well over short grass, and the large footprint offers decent traction, even on dirt.

Speaking of dirt, I soon had the desire to go where there was more of it—the Bethel Supercross BMX track in Connecticut. Although the Q-Tee is an on-road car, I just had to see what the buggy-based chassis could handle. With the full-fendered body removed, the car took to the rollers and drop-offs with ease and had no bad manners in the air; this was not a surprise, given the stabilizing gyro effect of the four heavy wheels.

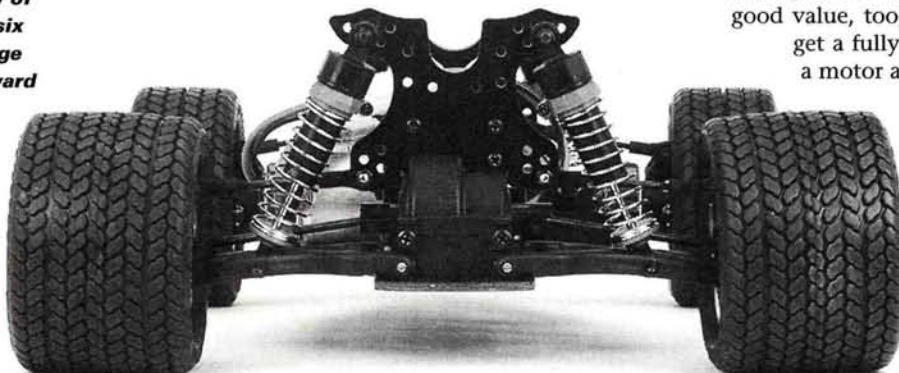
Assistant editor Greg Vogel and I enjoyed swapping the transmitter for runs at the doubles, but trouble soon sidelined the Q-Tee when the left, outboard drive

cup broke at the dogbone slot. We "fixed" the coupe by removing the dogbone and running the Q-Tee as a two-wheel-driver, which was still fun even if it did cut traction in half. Since installing a new drive cup, I've had no problems on- or off-road. I plan to get a truck body for off-road action and keep the coupe shell for on-road use—two cars in one!

FINAL THOUGHTS

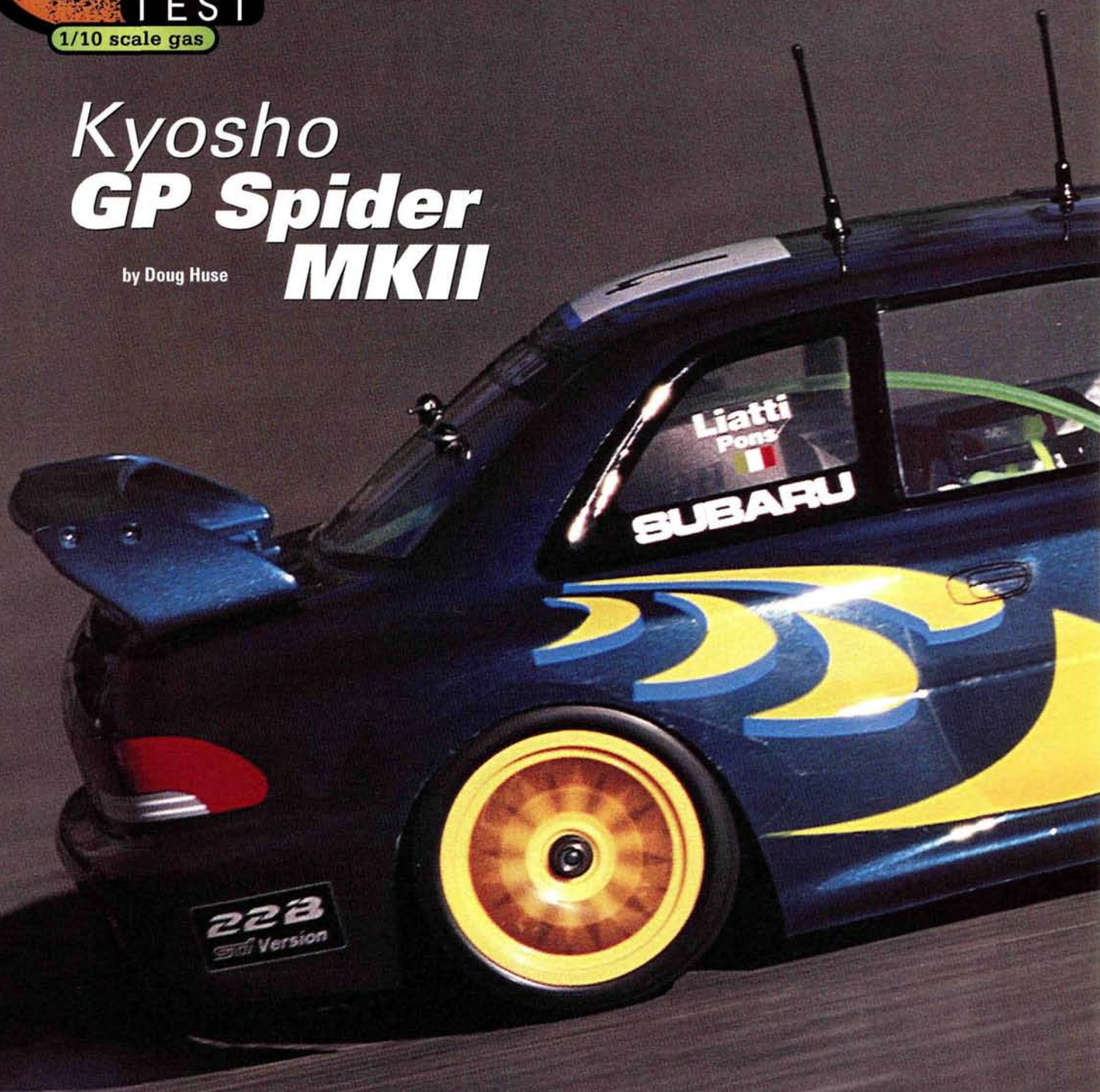
If your recipe for R/C fun includes full suspension and the classic looks of a '30's street rod, the Q-Tee is the car to get. You certainly won't see anything else like it! It's fun out of the box for parking-lot play, and the chassis is very versatile in case you want to experiment with other types of terrain later. Although I did have a little bad luck with that broken drive cup, the Q-Tee is very rugged overall. It's a good value, too; at about 150 bucks, you get a fully suspended 4WD car with a motor and mechanical speed control plus a partial bearing set. Good stuff.

**Addresses are listed alphabetically in the Index of Manufacturers on page 225.*



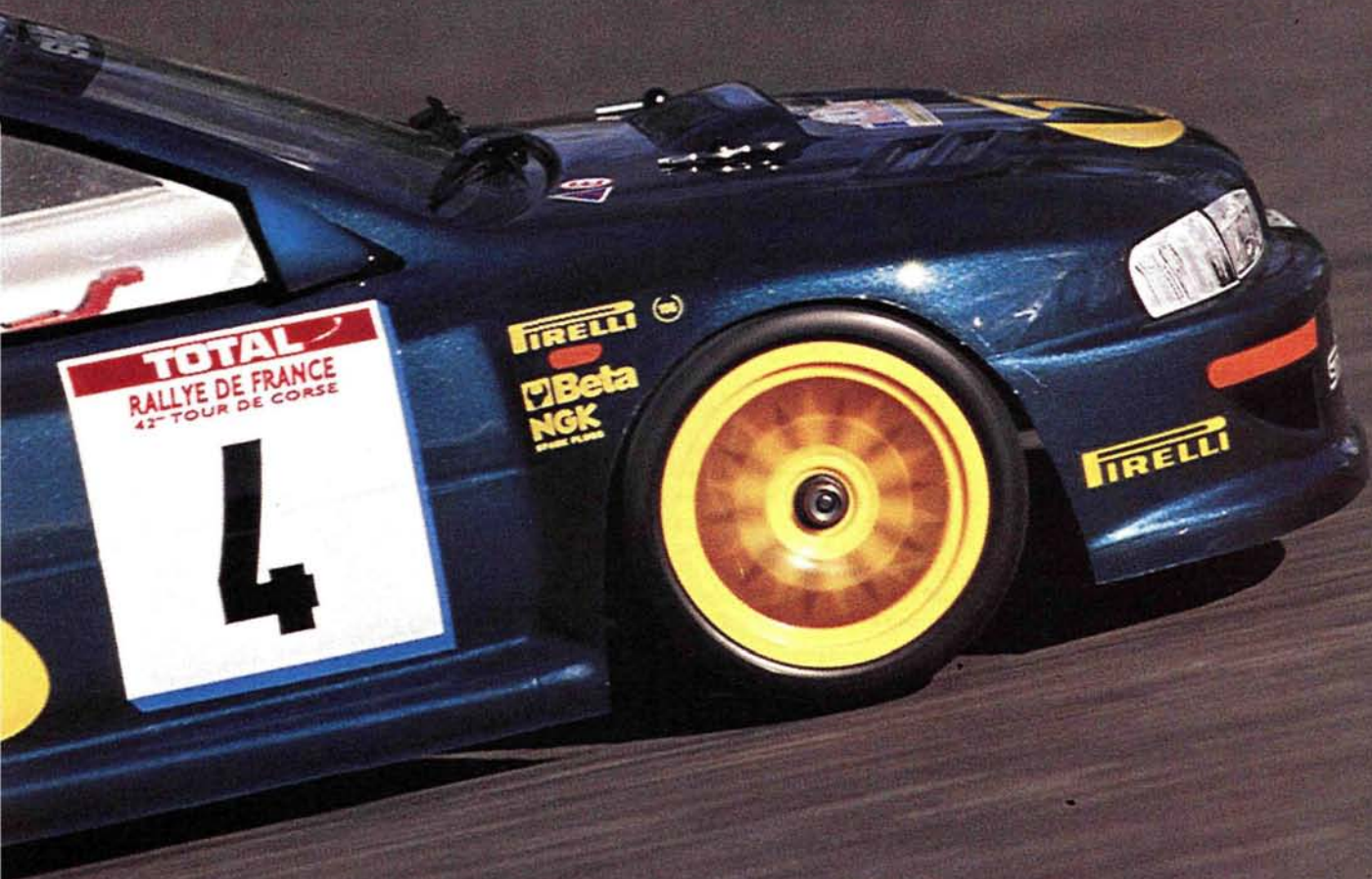
Kyosho GP Spider MKII

by Doug Huse



OVER THE YEARS, I have collected a fleet of R/C cars to choose from when I want to run through a few packs or a gallon of fuel on a sunny afternoon. I do have my favorites though, and Kyosho's GP-10 is probably the car I reach for most often.

When I received the new Kyosho* GP Spider MKII 4WD to test, I was a little reluctant to shelve my original; my reluctance quickly disappeared, however, as I noticed that Kyosho has taken all of the GP-10's major components, moved, lightened, or altered them, and then reconstructed them on the GP-10's original chassis. Let's look at just what Kyosho has done to one of the nitro touring-car market mainstays.



MAKE YOUR MARK



Kyosho's GP Spider MKII 4WD rally cars are available in three body styles (front to back): Subaru Impreza, Mitsubishi Evo-V and the Ford Escort.

KYOSHO GP SPIDER MKII



s p e c s

SCALE 1/10
LIST PRICE \$339.99

DIMENSIONS (chassis only)
Length 15 in. (381mm)
Wheelbase 10.25 in. (260mm)
Width (F/R) 7.75 in. (197mm)

WEIGHT
Gross, RTR 3.4 lb. (1,542g)

CHASSIS
Type Plate
Material Aluminum

DRIVE TRAIN
Type Belt
Primary Clutch bell/spur
Drive shaft Dogbones
Differential(s) Gear
Bearings/bushings Bearings

SUSPENSION
Type Independent lower arm with solid upper link
Damping Oil-filled coil-over shocks

WHEELS
Front/rear One-piece plastic
Dimensions 2x1 in.

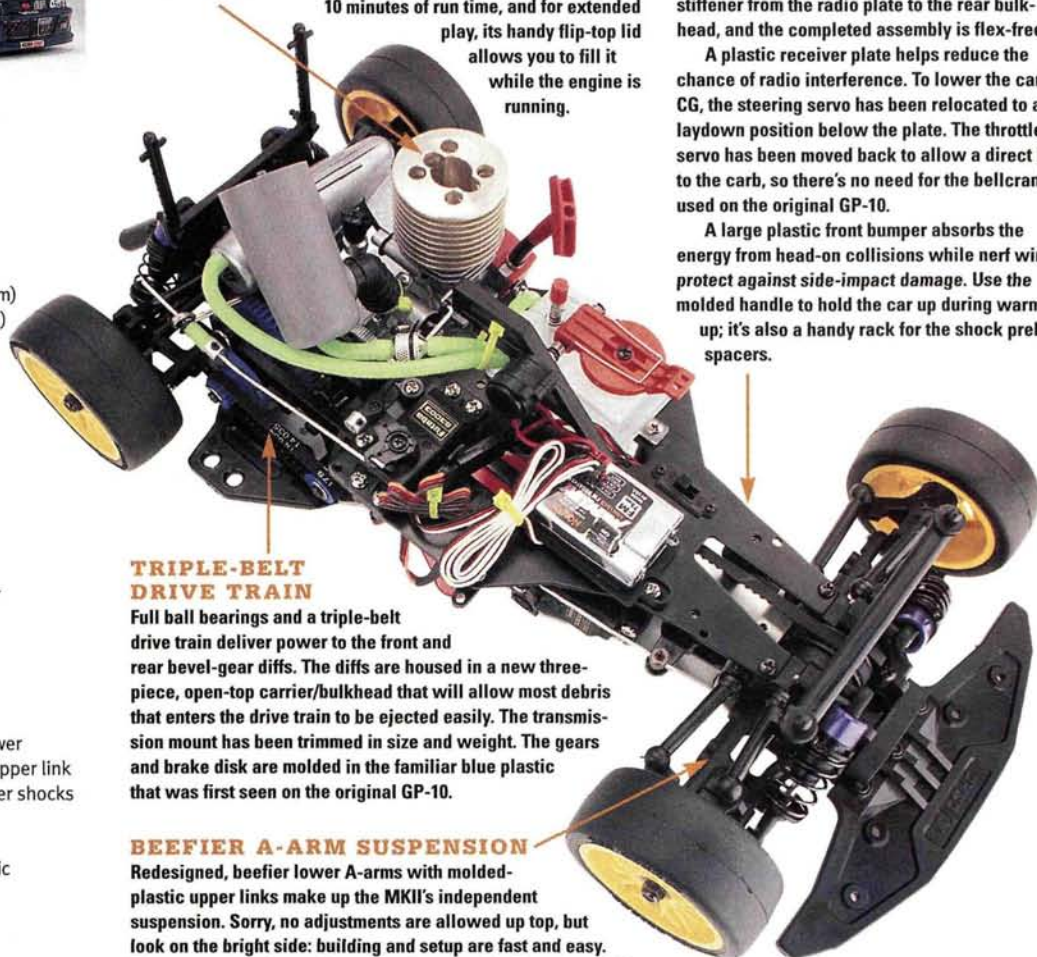
TIRES
Front/rear Rubber slicks

POWERPLANT
Engine GS-11R
Carb Barrel
Pipe/muffler Muffler

GS-11R ENGINE

Kyosho's GS-11R pull-start powerplant with machined, gold-anodized heat-sink head, dual ball bearings and special porting. The barrel carb features only a high-speed needle adjustment, which, in my opinion, means one less thing to worry about. A rear exhaust muffler and an oversize air filter are included to let the engine breathe properly.

A 75cc fuel tank with primer contains enough fuel for up to 10 minutes of run time, and for extended play, its handy flip-top lid allows you to fill it while the engine is running.



TRIPLE-BELT DRIVE TRAIN

Full ball bearings and a triple-belt drive train deliver power to the front and rear bevel-gear diffs. The diffs are housed in a new three-piece, open-top carrier/bulkhead that will allow most debris that enters the drive train to be ejected easily. The transmission mount has been trimmed in size and weight. The gears and brake disk are molded in the familiar blue plastic that was first seen on the original GP-10.

BEEFIER A-ARM SUSPENSION

Redesigned, beefier lower A-arms with molded-plastic upper links make up the MKII's independent suspension. Sorry, no adjustments are allowed up top, but look on the bright side: building and setup are fast and easy.

There are two holes on the suspension arms for the outboard hinge pins. You could use the inside holes to narrow the width, but Kyosho only supplies dogbones for a "wide" car. New shock towers support the body mounts and shocks. Here, too, there's only one mounting position for the shock—again, less hassle in the setup department but less adjustability as well.

Plastic-body, oil-filled shocks with blue-anodized caps replace the original friction-type units. I found them leak-free and silky smooth—perfect for all but hardcore racers who will opt for aluminum units.

Up front, the standard bellcrank steering with stamped-aluminum center link has been retained. Molded-plastic one-piece tie rods are used for the steering, so there's no setup guesswork.

ALUMINUM CHASSIS AND REVISED UPPER DECK

The chassis is one of the few things that hasn't been changed. It features a 2mm-thick aluminum plate with non-countersunk screw holes and relieved areas that reduce weight. An all-new, black-anodized aluminum plate ties the front and center bulkheads together. A tie rod acts as a stiffener from the radio plate to the rear bulkhead, and the completed assembly is flex-free.

A plastic receiver plate helps reduce the chance of radio interference. To lower the car's CG, the steering servo has been relocated to a laydown position below the plate. The throttle servo has been moved back to allow a direct link to the carb, so there's no need for the bellcrank used on the original GP-10.

A large plastic front bumper absorbs the energy from head-on collisions while nerf wings protect against side-impact damage. Use the molded handle to hold the car up during warm-up; it's also a handy rack for the shock preload spacers.

BUILDING & SETUP TIPS

- The plastic front and rear bulkhead pieces are very hard. Put a touch of dish soap on the screws during assembly so that they'll go into the plastic smoothly.
- Step 15. The markings on the rear uprights aren't correct. When attaching them to the lower arms, follow the diagram.
- Steps 15, 16, 19. Make sure that there's smooth movement on all the suspension pivot points. I found that a couple of the arms had to be filed to allow them to move freely.
- Step 27. If you do choose to use the included expansion muffler, secure the rubber tailpipe with a zip-tie. The pipe can loosen and leak residue fuel and oil onto the rear belt.
- Step 28. Take your time when setting up the gear mesh. It will pay off in the long run by saving your spur gear.
- Step 34. If you can, buy and install a fuel filter in the line that goes to the carb. Your engine will love you for it. Without a filter, a little bit of dirt always seems to find its way into the tank and then into your engine.

■ As you would with any nitro car, put Loctite* on all the screws that go into metal.

TEST GEAR

Futaba* 3PJ Transmitter with 3001 (steering) and 3003 (throttle) servos • Novak* Mercury FM receiver • Dynamite* receiver battery • Dynamite Blue Thunder 20% fuel.

YOU'LL NEED

- 2-channel radio system.
- 2 Servos.
- Glow-plug igniter.
- Fuel.
- CA glue.
- Polycarbonate-compatible paint.
- Receiver battery pack.

FACTORY OPTIONS

- Adjuster rod set—part no. SPW-5.
- Urethane bumper set—SPW-16.
- Stabilizer set—SPW-19.
- Special main chassis—SPW-50.
- Stainless-steel brake disk—SPW-51.
- Center belt tensioner—SPW-58.
- Carbon upper deck—SPW-66.
- 2-speed transmission—39431.
- Tuned exhaust set—39518.
- On-road spring set—92491.

PERFORMANCE

After I had primed the carb, the engine fired right up with just one tug on the starter. The included GS-11R engine has proven itself reliable in my other Kyosho vehicles, so its user-friendliness didn't surprise me. After running four tanks of very rich fuel through the engine to break it in, it was time to open it up. It ran flawlessly and responded to each squeeze of the trigger with crisp acceleration. The only time I experienced any lag was during extended idling, usually after taking time to put on the body.

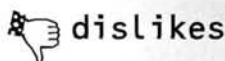
After making a few passes, I discovered the chassis was tweaked: the car hooked to the right and pushed to the left. Back at the bench, I removed the shocks and checked their lengths with calipers: they weren't the same length. I adjusted them by unthreading the ball ends until all of the shocks were the same length.

I hit the lot again and the car was a dream to drive. There was just a bit of

- High-quality body and sticker set.
- Full bearing set.
- Inclusion of oil shocks.
- Phenomenal hop-up potential.
- Receiver tray is isolated from vibration.

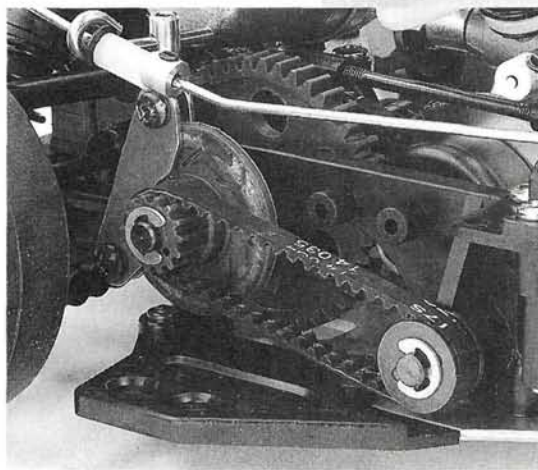
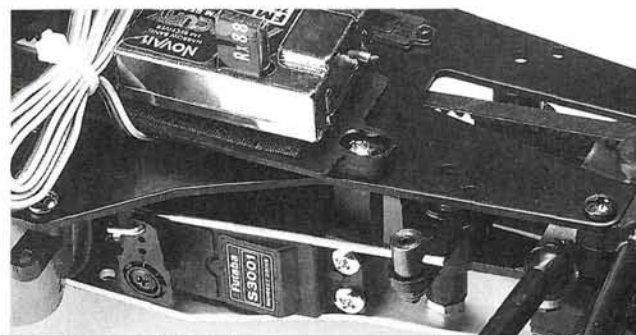


- Screw holes on chassis aren't countersunk.
- Not equipped with a center belt tensioner.
- Leaky muffler.



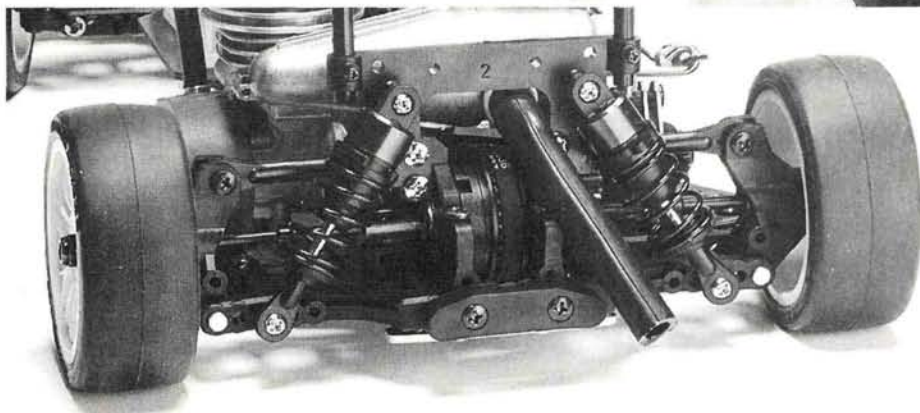
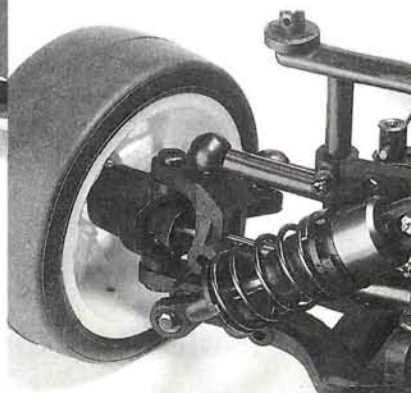
understeer, but I easily controlled that by quickly touching the brake or fluttering the throttle. This chassis is quite forgiving and begs to be driven hard. I was able to induce 4-wheel drift at any time, and I could keep it planted through the corners. Whenever I felt the tires breaking free, I just let up a little on the throttle, and they hooked right back up. After continuous hard braking, the plastic brake disk did show some signs of wear, but my only real complaint concerns the car's propensity to soak the rear belt with oil that comes from the muffler. First hop-up? Tuned pipe!

Right: the steering servo hangs from the aluminum top plate. By relocating the servo, Kyosho lowered the CG and gave the chassis a roomier look. Notice that the receiver is mounted on a plastic plate; this helps to reduce radio interference from the chassis.



Left: a revised center bulkhead supports the drive shafts. Notice the tie rod behind the spur gear; it helps stiffen the chassis. The car still has a plastic brake disk; unfortunately, plastic wears pretty fast. This picture was taken after four tanks' worth of action.

Right: oil-filled shocks are on the front of the MKII; the original GP-10 had friction bingers that hampered its performance, but these new oil units keep it firmly planted. Below: the new, open-style bulkheads allow dirt and debris to exit the drive train. A plastic shock tower replaces the old heavy aluminum and, as you can see, the exhaust still exits the rear of the car.



FINAL THOUGHTS

Kyosho has always made one of my favorite nitro sedans. The new MKII's bet-

ter shocks, revised suspension, new upper deck and more powerful engine, deliver a car that is faster, handles a lot better and is a blast to drive. So whether you want to grab some friends and bash around your local lot or grab some hop-ups and build a serious competitor, the GP Spider MKII could be the car for you.

**Addresses are listed alphabetically in the Index of Manufacturers on page 225.*

THE COMPETITION

	Kyosho	FSR	OFNA	HPI	Mugen
	GP Spider MKII	Nitro Bullet V-12	Nitro Semi-Pro	Nitro RS4	Prime 12
Wheelbase	10.25 in. (260mm)	10.03-10.2 in (255-259mm)	10.28 in (261mm)	10 in (254mm)	10.25 in. (260mm)
Width (F/R)	7.75 in. (197mm)	7.2/7.5 in. (183/191mm)	7.5 in. (191mm)	7.75 in. (197mm)	7.5 in. (191mm)
Weight	54.4 oz. (1,542g)	51 oz. (1,446g)	49.4 oz. (1,392g)	52 oz. (1,474g)	58.5 oz. (1,658g)
Diff Type	Gear	Ball	Ball	Bevel gear	Bevel gear
Brakes	Composite	Graphite	Composite	Disk	Composite
Exhaust	Muffler	Tuned pipe	Muffler	Muffler	Muffler
List price	\$339.99	\$499.99	\$359.95	\$329	\$355.99
Available at*	\$229.99	\$325.99	\$237.99	\$219	\$219.99
Reviewed in	03/99	02/99	08/98	06/97	7/98

*Prices vary with location.



Thunder Tiger **Twister** by Craig Trachten

You've met the type before. They've never ridden a motorcycle, but they want a CR250 for their first bike. They've never been down a hill on anything other than a sled, but make that first snowboard a Burton Project freestyle board. And when it comes to R/C, well, only nitro power will do. Luckily for the gimme-the-cool-stuff-now set,

twist & shout



Thunder Tiger's new Twister stadium truck has arrived. Even neophyte R/C hobbyists should have little difficulty completing and running this 90-percent- preassembled kit. And when it's time for the rubber to hit the road, the Twister's .15-size powerplant should keep 'em smiling. Are you a "make-mine-nitro" newcomer? Read on.

THUNDER TIGER TWISTER



s p e c s

SCALE 1/10
LIST PRICE \$299.99

CHASSIS
Wheelbase 11.58 in. (294mm)
Width (F/R) 11.2 in. (284mm)

WEIGHT
Gross, RTR 51.5 oz. (1,450g)

CHASSIS
Type Double-deck plate
Material Blue-anodized aluminum

DRIVE TRAIN
Type Gear-driven shaft
Primary Clutch bell/spur
Drive shafts Dogbone
Differential Bevel gear
Clutch Centrifugal
Bearings/bushings two-shoe Bearings

SUSPENSION (F/R)
Type Independent A-arm w/adjustable upper link
Damping Plastic-body, oil-damped shocks

WHEELS
Type One-piece plastic

TIRES
Type 4-rib/mini-pin type

POWERPLANT
Engine Thunder Tiger GP-15BX
Carb Rotary
Pipe Plastic tuned

.15 TIGER POWER

The Twister arrives with Thunder Tiger's GP .15 pull-start engine already installed, but you do have to attach the header, pipe coupler and tuned pipe. Once it's in place, a hole must be drilled in the pipe for the pressure tap. An attractive, rubber air filter is supplied, but the cast heat-sink head is an anachronism. Hey, Thunder Tiger, how about a blue-anodized head to match the chassis?

ALUMINUM CHASSIS

The Twister's 90-percent pre-assembled chassis is double-deck, blue-anodized aluminum. The lower plate is one piece with front kick-up, and the upper deck comprises two separate plates. The rear deck ties the rear bulkhead to the center spur gear/brake assembly. The front plate holds the throttle/steering servos. Without sacrificing rigidity, the two-piece upper-deck construction allows maintenance/repair without having to take apart the entire upper deck.

FACTORY-BUILT SHOCKS

The plastic-body shocks are oil-damped, use bladders for volume compensation and offer suitably long suspension travel. An assortment of spring-preload clips is provided for ride-height adjustment.

A-ARM SUSPENSION:

The Twister sports 4-wheel, independent, A-arm suspension. Both ends are fitted with adjustable camber links, and the steering links are also adjustable. All the links' pivots are captured by pan-head screws, so the Twister should not be sidelined by linkages popping off when the going gets rough.

BUILDING & SETUP TIPS

Since the Twister arrives 90-percent built, the only tip I can offer is that you should check the tightness of all screws, nuts and bolts before your first run and after each outing. I did not find loose parts on this particular vehicle, but with other preassembled kits, I have found that hardware can loosen during shipping. Once your Twister is out of the box, here's what you'll have to do to get it rolling:

- Mount the tires on the wheels (use CA), then install on truck (Elapsed time, 5 minutes).
- Install the servos on the radio tray, then install the tray and attach the body mounts (20 minutes, with a snack).
- Attach the linkages to the steering and throttle/brake servos. (Take another 10 minutes to do it right.)
- Install the exhaust system (10 more minutes), and you're ready for a body-off break-in run.
- Paint, cut and mount the body. This may take an hour and a half (one color, skip the decals) to ... who knows? I cheated and sent my Twister body to Motion Graphics*!

SHAFT DRIVE

An unconventional drive train is used to simplify servo placement. The engine drives a spur gear that is fixed to a shaft that reaches from the center of the truck to the gearbox, where a bevel gear transfers power to the gear differential. A disk brake is keyed to the spur gear for effective braking. Sealed ball bearings support all the rotating parts.

YOU'LL NEED

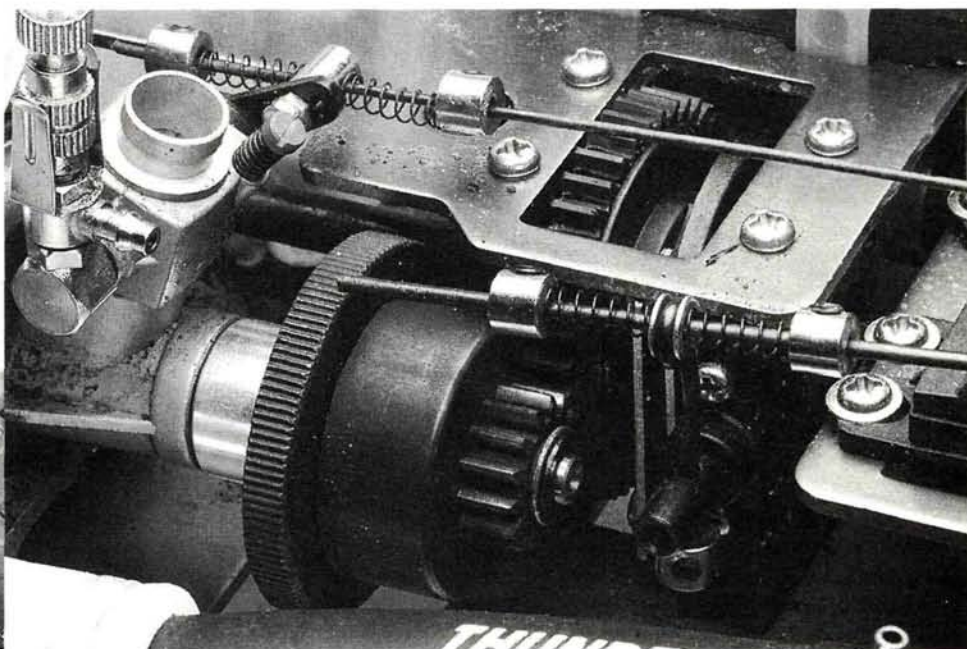
- Glow-plug igniter.
- Fuel (10- to 20-percent-nitro recommended).
- 2-channel radio set with two standard servos.
- Receiver battery.
- Polycarbonate-compatible paint.

TEST GEAR

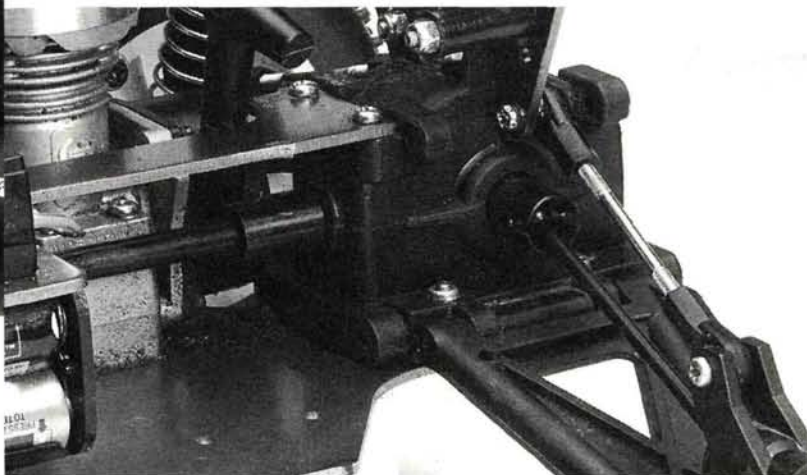
• Dynamite* Blue Thunder 20-percent-nitro fuel • Airtronics* CX2P transmitter and receiver • Airtronics 94102 servos

PERFORMANCE

I'll spare you the boring details of engine break-in, but I will mention that the Thunder Tiger GP-15BX engine never failed to start within the first three pulls; more often than not, a single yank did the trick. Although you might think the .15 powerplant would be a fire breather, it is actually a fairly mild engine. Most of the power is down low, so launches are positive, and there's plenty of torque on tap.



Above: a two-shoe clutch drives the spur gear, and a single disk brake hauls the Twister to a stop. The composite disk has held up well so far. **Left:** the .15 powerplant's small, cast head does not provide adequate heat dissipation for lean carburetor settings; to keep the engine cool, keep it rich. **Below:** with the fuel tank, shock and rear wheel removed, it's easy to see the Twister's heavy-duty drive shaft and compact transmission. A bevel gear at the end of the shaft drives the diff gear directly.



- Excellent, reliable engine.
- Durable chassis.
- Competent factory assembly; quick and easy final construction.



likes

- Where's the machined heat-sink head?
- No antenna mount provided.
- Tuned pipe should be factory-drilled for pressure fitting.



dislikes

THE COMPETITION

	Traxxas NITRO SPORT	Thunder Tiger TWISTER	Kyosho SANDMASTER ST-2 RTR
Wheelbase	11.31 in.	11.58 in.	15.4 in.
Width	12.5 in.	11.2 in.	9.7 in.
Weight (RTR)	68.5 oz.	51.5 oz.	51 oz.
Diff type	Planetary gear	Bevel gear	Bevel gear
Chassis	Aluminum/composite	Aluminum	Composite
List price	\$420	\$299	\$399.99
Available at*	\$257 (RTR w/o radio)	\$220	\$257
Reviewed in	6/98	3/99	5/96

*Prices vary with location.

The truck's top speed nudged the higher end of the speed spectrum for a "back-yard" truck, and 1/10-scale-quartermile runs impressed bystanders who had been drawn in by the burble of the nitro engine. On dirt, the Twister had a fair amount of push, which made the truck easy to drive for those lucky kids I allowed a turn at the wheel, and the supple suspension kept the

car shiny-side up. The suspension is set on the tall side for greater ground clearance, which came in handy, but the high riding stance made jump landings a little sketchy (but always fun).

FINAL THOUGHTS

Plain and simple, the Twister is a solid, fun, user-friendly nitro truck. The engine is the high point: it is easy to start, and its broad power band allows trouble-free running tank after tank. I recommend the Twister to first-time gassers and to seasoned hobbyists who are looking for a nitro-powered play machine. Only racers would find the Twister lacking, but hey, it's not meant for you competitive types!

*Addresses are listed alphabetically in the Index of Manufacturers on page 225.



HPI Super Nitro RS4



THE RS4 GETS SUPER

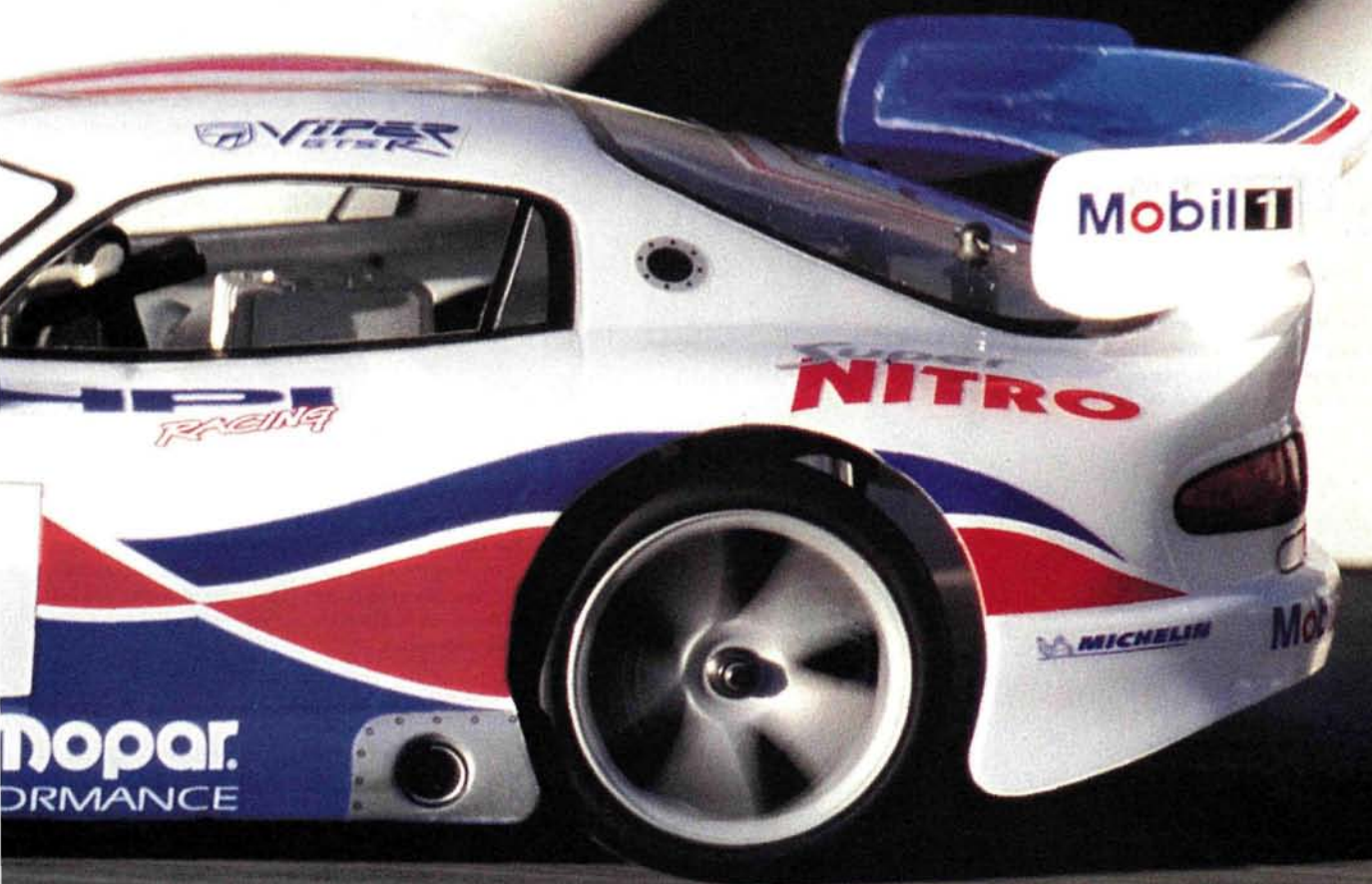
by Steve Pond

HPI* SEEMS TO HAVE a golden touch. The popularity of its vehicles has, at the very least, brought many new enthusiasts into the R/C market. The RS4 and the Nitro RS4 have made a significant contribution to the success of their respective classes in the sport and racing community. Well, strap on the seat belt because HPI is about to take us for a ride in another class that is sure to benefit from HPI's latest introduction—the Super Nitro RS4.

The Super Nitro RS4 is patterned after what is popularly called the Super Ten class—after the Kyosho Super Ten cars. These are larger than $\frac{1}{10}$ and smaller than $\frac{1}{8}$ nitro cars with chassis that resemble $\frac{1}{10}$ nitro

touring cars on steroids. Kyosho's Super Ten and Tamiya's TGX are in this class, and the Super Nitro's design follows in the footsteps of these two pioneers.

The Super Nitro comes in two configurations: with a 280mm wheelbase and a Dodge Viper body and with a 300mm wheelbase and a Ford F-150 Flareside body. The two wheelbase options are identical to the Kyosho car (280mm) and the Tamiya car (300mm), and this was intentional. The Super Nitro has body mounts that fit Kyosho and Tamiya bodies; the suspension and body mounts can quickly be changed to accommodate either wheelbase. A Super Nitro RS4 can use either of HPI's bodies or any Kyosho or Tamiya "super" size body!



SIZED

s p e c s

SCALE 1/10
LIST PRICE \$499.99

DIMENSIONS
Wheelbase 11.02 in. (280mm)
Width (F/R) 8.74/8.82 in.
(222/224mm)

WEIGHT
Gross RTR 64.7 oz. (1,834g)

CHASSIS
Type Double-deck
Material (upper/lower) Molded aluminum plate

DRIVE TRAIN
Type 3-belt
Primary Clutch bell/spur
Drive shafts Dogbone
Differential(s) Gear
Slipper clutch None
Bearings/bushings Bearings

SUSPENSION (F/R)
Type Double A-arm with adjustable upper arm
Damping Oil-filled, coil-over

WHEELS (F/R)
Type One-piece molded plastic
Dimensions (DxW) 2.25x1.375 in.
(57x35mm)

TIRES
Type (F/R) HPI M-compound racing slick

POWERPLANT
Engine HPI Nitro Star .15 FE
Carb Rotary
Exhaust Canister muffler

**BELT TENSIONERS**

The Super Nitro includes a front, side and rear belt tensioner. This is an improvement over the standard Nitro RS4 that had only rear belt tension adjustment.

M-COMPOUND SLICKS/SUPER STAR WHEELS

The stock tire/wheel combination includes M-compound slick tires and Super Star wheels. The M-compound tires provide a good balance of traction and wear, but softer-compound tires may be better for racing.

DOUBLE A-ARM SUSPENSION

This entirely new suspension for the Super Nitro has lower arms with extra reinforcing to make them much stiffer than the arms used on the smaller 1/10 cars. The upper arm also adds a great deal of strength to the suspension assembly, and that means more consistent handling.

PERFORMANCE

Before running the Super Nitro, I went through the very comprehensive Nitro Star .15 FE engine break-in instructions, which should be easy for the newcomer to follow. Don't be too eager to get the Nitro out on the track or road; a little extra time spent breaking in the engine has a noticeable impact on its performance and longevity. Once through the break-in period, I leaned out the engine and headed for the track.

NITRO STAR .15 FE ENGINE

The standard engine in the Super Nitro kit features a single-needle carb (for easy adjustments) and a pull-start.

TURNBUCKLE LINKAGE

All links are turnbuckle type. They permit quick and precise adjustment of camber and toe angles.

2.5MM ALUMINUM CHASSIS PLATE

The Super Nitro's chassis plate is similar to that of the Nitro RS4 Racer. It's 2.5mm thick and anodized in the familiar bright purple. The screw holes in the bottom of the chassis plate have been countersunk so the screwheads don't scrape the ground.

HARDENED-STEEL DOGBONES

Hardened-steel dogbones are better able to handle the stresses of transferring power to the Super Nitro's wheels.

YOU'LL NEED

- 2-channel radio with receiver.
- Two servos.
- Receiver battery pack.
- Model engine fuel.
- Glow igniter.
- Lexan paint.
- CA glue for tires.

OIL-FILLED COIL-OVER SHOCKS

Standard, plastic-body, coil-over shocks are included in kit along with shock oil of unspecified weight and a set of black, 1.55mm shock springs. Shown here are the optional 1.65mm blue and 1.4mm white springs.

REMOVABLE RADIO TRAY

This is part of the new design. All of the radio gear can be removed simply by popping the steering linkage, removing the servo horn from the throttle servo and pulling two clips (about 45 seconds of work), and that allows you to clean the car without fear of damaging to the electronics.

FACTORY OPTIONS

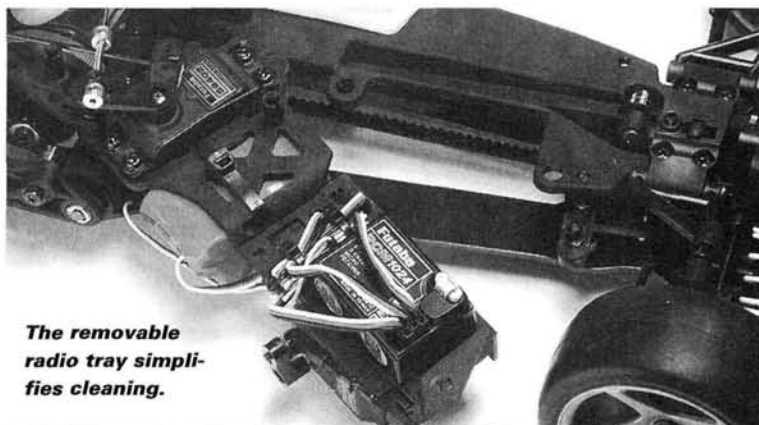
- Nitro Star .15 SS engine—part no. 1600.
- 10mm Teflon shock pistons (2)—6818.
- Shock springs
 - 12x29x1.4mm (white)—6833.
 - 12x29x1.45mm (yellow)—6834.
 - 12x29x1.5mm (red)—6835.
 - 12x29x1.6mm (green)—6837.
 - 12x29x1.65mm (blue)—6838.
 - 12x29x1.7mm (purple)—6839.
- Super shocks (45-56mm)—A111.
- Aluminum pilot shaft—A169.
- Swaybar set—A209.
- Stainless-steel hinge pin set—A261.
- Clutch bell (14T)—A814.
- 2-speed transmission—A910.
- 2-speed second gear set (39/18T, 37/20T)—A818, A819.
- Fiber brake disk—A844.
- Nitro racing clutch—A885.
- 39T ball differential—A905.
- Aluminum gear-brace set—A907.
- 20mm heat-sink engine mounts (pull-start)—A915.
- 15mm heat-sink engine mounts (non-pull-start)—A916.
- 40mm lightweight flywheel (pull-start)—A925.
- 32mm lightweight flywheel (non-pull-start)—A926.
- Oil catch for Nitro Star engines—A928.
- Super Nitro RS4 graphite rear brace—A935.
- Super front one-way differential (39T)—A959.
- Tuned pipe and exhaust header (300mm wheel-base only)—A970.

TEST GEAR

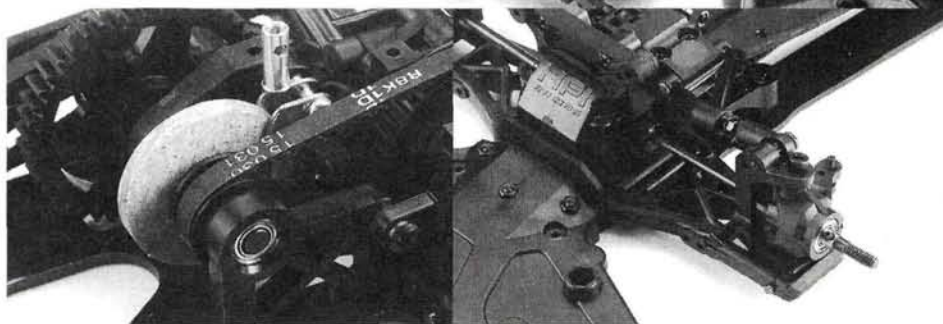
• Futaba* 3PJ radio system w/PCM receiver • Futaba 9402 high-performance servos • Team Orion* 5-cell Ni-Cd receiver battery pack • McDaniel* R/C Ni-Cd glow igniter • Blue Thunder* 30% Race Formula fuel.

plus as this component is usually the first to fail in a nitro engine. HPI intends to install a new carb on the production engines to improve throttle response.

I found the stock suspension setup conservative; it allows a slight steering push that makes the car more forgiving. I made some changes to the suspension—different shock oils and springs for



The removable radio tray simplifies cleaning.



Before I ever placed the car on the ground, I replaced the stock plastic brake disk with an HPI optional fiber disk that can take much more punishment and is highly recommended for racing.

The Super Nitro has very strong lower suspension arms that are further strengthened by beefy adjustable upper arms. Notice that the ends of the front suspension arms are capped to enhance strength.

more responsive handling (see "Building and Setup tips"). The Super Nitro's center of gravity is only minutely higher than that of the standard Nitro RS4, but the

where on the track with confidence. The kit includes M-compound slicks that offer extended wear and a little drift in the corners. For competition, however, I recommend a softer tire for better bite.

The extra weight of this supersize car makes it marginally slower, but it still turns in a very respectable performance. Its largeness somehow makes it more appealing as it goes around the track. It could just be that I'm used to seeing smaller cars on the track, but the Super Nitro looks simply awesome in comparison.

FINAL THOUGHTS

The Super Nitro RS4 is excellent—not too challenging for newcomers yet challenging enough for experienced drivers. Sure, it has plenty of potential for additional

- Higher quality; more rigid plastics than on previous models.
- Belt tensioners on every belt.
- Sharp-looking body with excellent decals.
- Removable radio tray allows easy chassis cleaning.
- Good engine break-in, tuning and troubleshooting info.



Likes

- Fuel filter not included.
- Plastic brake disk.



dislikes

THE COMPETITION

	HPI Super Nitro RS4	Tamiya TGX Mk 1	Kyosho Super 10-Porsche 911
Wheelbase	11.02 in. (280mm)	11.8 in. (300mm)	11.02 in. (280mm)
Width (F/R)	8.74/8.82 in. (222/224mm)	9/8.82 in. (229/222mm)	8.8 in. (220mm)
Diff type	Gear	Gear	Bearing
Chassis	Aluminum	Duralumin	Aluminum
List price	\$499	\$514	\$499
Available at**	\$307	\$334	\$349
Reviewed in	3/99	9/95	NA

**Prices vary with location

BUILDING & SETUP TIPS

Building the Super Nitro is relatively easy. The instructions consist mostly of exploded-view diagrams with a few written instructions in the critical areas. For a trouble-free assembly, pay close attention to the diagrams.

The way the parts are packaged requires access to many screw bags during a single assembly step. Assembly will go much more smoothly if you have a work space large enough to allow you to spread out all the components.

When you reach the engine installation step, skip it until you've assembled the entire chassis. The Y-shaped rear upper chassis brace is much easier to install without the engine and exhaust system in place. Also finish the rear shock installation—at least on the short-wheel-base Viper kit—before installing the engine. The rear shocks are attached to the front side of the rear shock tower when the chassis is set up for the 280mm wheelbase, and the engine interferes with the screwdriver used to attach them. When the car is complete, of course, you'll still have to get the shocks on and off for maintenance. I found it easiest to remove the bottoms of the shocks from the suspension arms and then remove the rear shock tower with the shocks attached. Keep in mind that our kit was an early preproduction sample; now that the car has hit the hobby-shop shelves, the instructions may reflect the appropriate changes.

The Viper's stock suspension setup is very forgiving and easy to control. For the performance-minded, however, I experimented with a few different setups (still using the stock tires) and came up with a configuration that is easy to drive but will get you through the turns considerably quicker:

■ 8-degree front hub carriers (the instructions recommend installing the included 10-degree hub carriers).

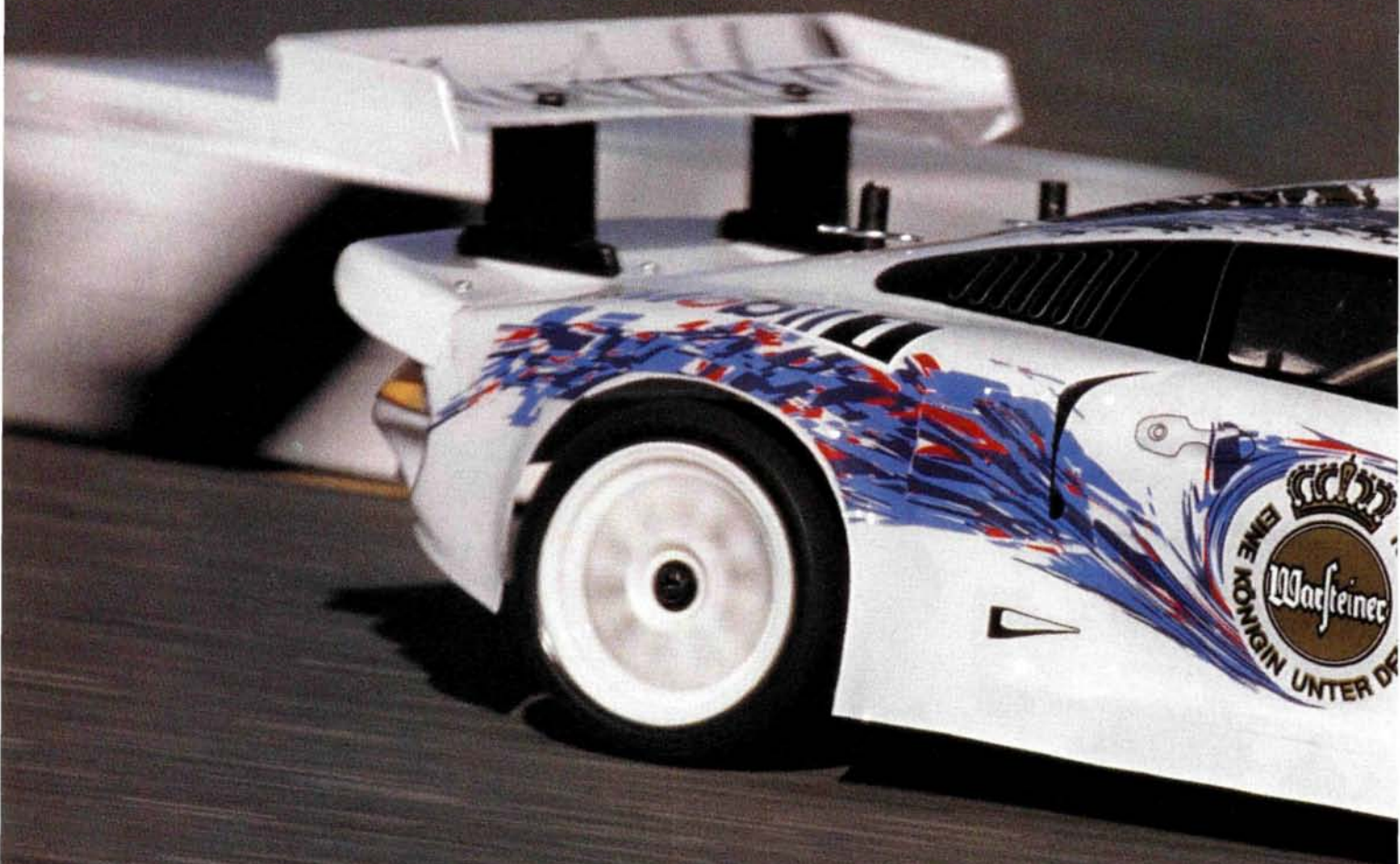
■ Front shocks
0.060 limiter (inside)
No. 3 piston
45WT silicone shock oil
HPI 1.4mm shock springs (white)

■ Rear shocks
0.040 limiter (inside)
No. 3 piston
60WT silicone shock oil
HPI 1.7mm shock springs (purple)

If you stick with the stock, canister-style muffler, punch out the two 5mm plugs in the baffle plate. This nominally increases the engine noise but noticeably improves bottom-end throttle response.

performance and has a strong foundation to build on. HPI has already indicated that it is working on performance accessories for speedmongers like me, so don't be surprised if a ballistic Super Nitro nerfs you out of the way at your local track. This car is likely to create high-level interest in a racing class for the big boys!

*Addresses are listed alphabetically in the Index of Manufacturers on page 225.



CEN **SP1** by Peter Vieira

As Kermit the Frog once said, "It ain't easy being green." Young newcomers to the wonderful world of R/C often find the prospect of building their own R/C cars daunting, especially if they must take the plunge without the help of someone already in the hobby—or at least mechanically inclined. I will say with confidence that most kits can easily be assembled by anyone with patience and a decent screwdriver, but some kits are certainly easier to get running than others. CEN*, which is new to the U.S. R/C car scene, has released the SP1—a kit aimed squarely at beginners who want to keep it simple. Available in electric- and nitro-powered versions, the SP1's formula for first-time success combines 2WD construction and extensive preassembly with accurate touring-car and GT1-style bodies. Should this be your first car? Check it out.

s p e c s

SCALE 1/10
LIST PRICE \$159.95

DIMENSIONS
Wheelbase 10.23 in. (260mm)
Width 7.5 in. (190mm)

WEIGHT
Gross, RTR 50 oz. (1,418g)

CHASSIS
Type Double-deck
Material Fiberglass lower/molded upper

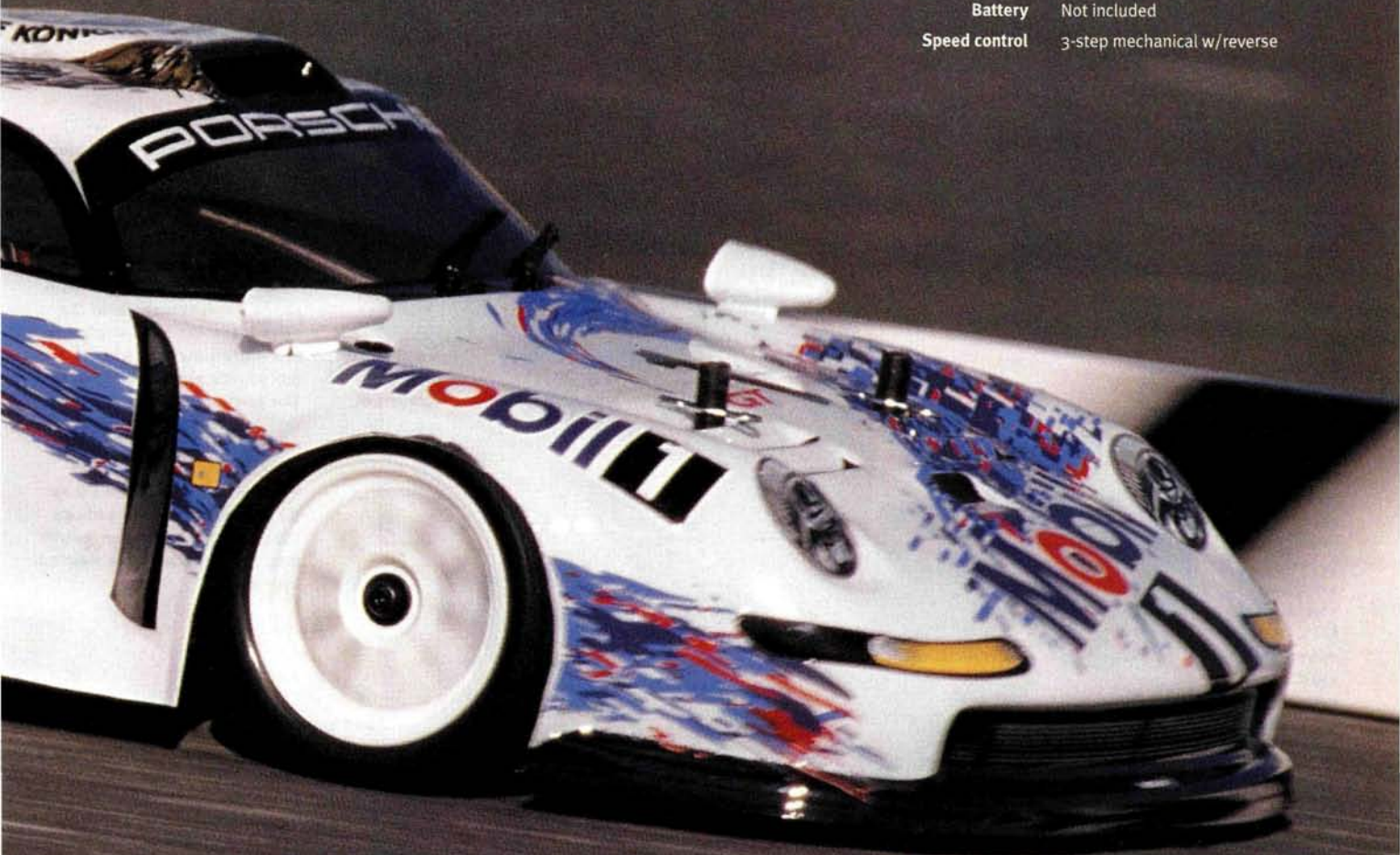
DRIVE TRAIN
Type Sealed gear
Primary Pinion/spur gear
Drive shafts Plastic dogbones
Differential(s) Gear
Slipper Clutch None
Bearings/bushings Bushings

SUSPENSION (F/R)
Type Lower A-arm w/fixed camber link
Damping Plastic-body, oil-filled shocks

WHEELS (F/R)
Type Standard sedan
Dimensions 2x1 in. (50.8x25.4mm)

TIRES
Front/rear Treaded sedan type (hard)

ELECTRICS
Motor 540 stock
Battery Not included
Speed control 3-step mechanical w/reverse



BASIC TRAINING



540 MOTOR AND MECHANICAL SPEED CONTROL

Basic entry-level stuff. The motor provides long run times and is acceptably speedy for beginners, although most will quickly yearn for more "go" power. The benefits of an electronic speed control (ESC) over a three-step mechanical controller have been well documented, but the average SP1 owner will probably drive the car at full throttle all the time. For that sort of use, a mechanical controller is just fine.

DIRECT-LINK STEERING

The steering servo is mounted upside-down, and an oversize servo-saver (supplied) is joined to the steering arms by means of threaded links; this permits toe adjustment. The servo-saver includes a selection of splined inserts to accept all popular servos.

A-ARM/UPPER WISHBONE SUSPENSION

The SP1 does not use hub carriers up front, but instead links the steering hubs directly to the upper and lower arms by means of oversize plastic pivot balls (aluminum balls are available as an option). The upper wishbones can't be adjusted to alter camber, but the order of the spacers on the inboard hinge pin can be changed to alter caster. With its molded upper links and hinge-pin hub pivots, the rear suspension is more conventional.

YOU'LL NEED

- 2-channel radio set.
- 7.2V stick-type battery.
- 2 standard servos (usually included with radio set).
- Charger.
- Polycarbonate-compatible paint.

FACTORY OPTIONS

Aluminum parts

- Suspension pivot ball—part no. SPS08.
- Diff joint cup—SPS04.
- Wheel shafts (F/R)—SPS02 /SPS03.
- Swing shaft—SPS01.

OIL-FILLED SHOCKS

The SP1's dampers use tried-and-true construction: plastic bodies, double-O-ring seals, threaded-aluminum/plastic caps and snap-on pre-load spacers. As assembled by CEN, the shocks are underdamped, and that makes for a bouncy ride. I discovered that the shocks tend to "lock up" if the car is left sitting for a while; once freed up with a squeeze, they work fine. I know beauty is in the eye of the beholder, but I don't think anyone will dig the shocks' toy-like purple color. My advice to CEN: mold 'em in black.

3-GEAR TRANSMISSION

The simple transmission features a bottom-mounted gear diff that is mated to a countergear and top gear—the classic three-gear layout, which has long been accepted as the most efficient way to get the spin from the motor into the wheels via gears. Unfortunately, the SP1 does not accept standard "two-hole" spur gears, but common 48-pitch pinions can be used to alter gearing. The transmission gears spin very smoothly, and the differential action is smooth.

PLASTIC DOGBONES

Now, I'm not saying no car should have plastic drive axles; plastic telescoping drive shafts have served well in R/C cars for years, and the plastic versions of Schumacher's "Blade" universals work fine. These designs still, however, use metal for the critical pins that actually bear the drive loads; the SP1's dogbones are entirely plastic and are paired with plastic drive cups. The parts are noisy in use and they're purple. Fortunately, CEN offers aluminum dogbones and drive cups that are nicely finished and more durable than the plastic jobs. I'd love to see them as stock equipment, but for now, I'll add them to the must-get hop-up list.

QUICK-RELEASE BATTERY TRAY

Some entry-level kits still rely on frustrating zip-tie systems to secure the battery pack (yech), but CEN wisely equips the SP1 with a snap-shut battery tray. It's a little overbuilt—I like to call it "stick-pack Alcatraz"—but tougher is always better in an entry-level car.

FIBERGLASS MAIN CHASSIS

The chassis plate is fully countersunk to prevent any screw heads from catching the pavement, and it is suitably stiffened by the molded radio tray/upper deck. The transmission housing and motor plate also increase the rigidity of the fiberglass chassis.

SCALE BODY

The high point of the SP1 is the body; whether you choose the Acura NSX, Mercedes CLK GTR, Porsche 911 GT1, or BMW 320i, you'll find the shell well detailed and highly scale with complete decal sheets and separately molded features such as windshield wipers, wings and mirrors.

PERFORMANCE

I completed the final assembly of the SP1 in about 15 minutes right at my desk. Even the most inexperienced newcomer should have little trouble duplicating this feat within half an hour at the kitchen table (minus painting the body, of course).

I clicked on my watch's stopwatch function to see how long the SP1 would keep ticking on a freshly charged DuraTrax* 1500 pack and then let it rip—or scoot off, at least.

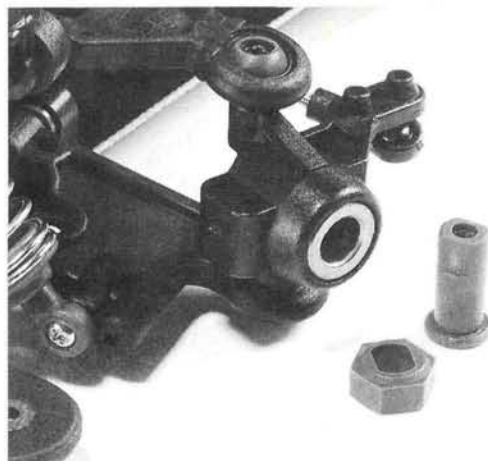
The mechanical speed controller operated as smoothly as a 3-step unit can, although I spent most of my time with the car at full throttle. From a standstill, the SP1 can light up its hard tires and do donuts (all beginners love doin' donuts), and its straight-line speed is acceptable for fun in close quarters; out in the great wide open of a large parking lot, its low top speed is more apparent.

Durability was tested quite unscientifically by ramming the car into a wall at half-throttle; this scarred the front bumper but didn't do any real damage.

At speed, the car understeers a little for ease of handling. The SP1 is most fun when you use reverse to do 180s or to let the car spool up backwards and then jam full throttle for long, tire-spinning "burnouts." As the battery began to go flat, I checked my watch and noted that almost 14 minutes had passed since my first squeeze of the throttle. As expected, the 540 motor made up for its lack of sheer speed with plenty of run time.

FINAL THOUGHTS

The SP1 is an acceptable car for first-timers, especially the younger ones. Preassembly makes it easy to get started, and the scale bodies are a plus. In fact, it's a good teaching machine; the experience you'll get from tinkering with the gear transmission, oil shocks and



Metal bushings are used in the hubs, but all four axles are purple plastic, as are the diff outdrives and dogbones. These parts work, but the aluminum hop-up parts are much nicer. When the stock stuff wears out, upgrade!

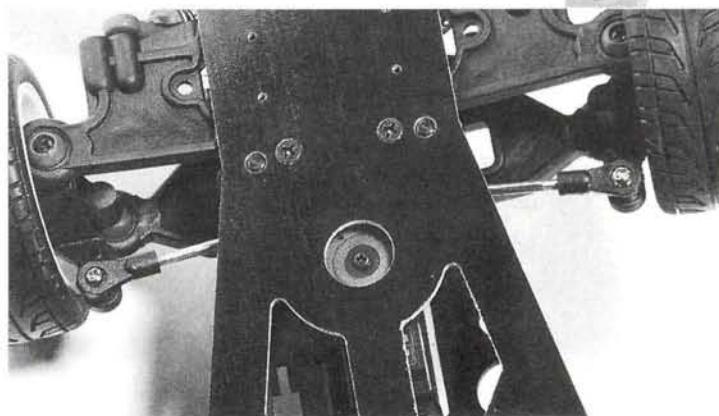
- Very easy final assembly.
- Good overall parts quality.
- Inexpensive.

Likes

- The purple plastic shocks scream "toy" (but they function well enough).
- Cheesy plastic dogbones.

dislikes

Don't you hate when you install the steering servo before you trim out your radio, only to discover the servo horn is way off? The SP1 thoughtfully provides a handy servo-saver access hole just for those occasions.



Since the SP1 is nearly ready to run when you open the box, my building tips are few.

BUILDING & SETUP TIPS

■ The only wrenching I had to do that was not covered in the instructions was to give a quick twist of the mechanical speed control's pivot nut; it was loose and didn't hold the unit's wiper arm firmly against the contacts in each speed. This was remedied by a half turn of the included box wrench.

■ The SP1's oil-filled shocks will allow you to experiment with oil weight and spring rate (Tamiya* springs will fit), but the stock settings are more than adequate when you run the SP1 with the supplied motor. To make gearing changes, try adding aftermarket 48-pitch pinions.



These goodies are available to replace the SP1's "purple power" parts. The plump aluminum dogbones are matched with hard-anodized drive cups and work well; they quiet the car and make power delivery smoother. Likewise, the aluminum front axles and pivot balls increase precision and give the car a more serious look.

independent suspension will apply to any future R/C projects.

I hope the purple parts may be molded in black in future production runs, or better still, perhaps the aluminum upgrade parts will be included as stock components. Out of the box, the

SP1 is a good beginners' car—easy and entertaining to drive, mildly upgradable and suitably durable.

*Addresses are listed alphabetically in the Index of Manufacturers on page 225.

BIG WHEEL BATTLE

2WD ELECTRIC MONSTER TRUCK GUIDE

by Staff

Like gravity and Adam Sandler movies, monster trucks are an irresistible force. Who doesn't get a kick out of these over-powered titans of tread warfare? It doesn't matter whether you're a true believer or just a channel-surfer who can't get past ESPN2 when those big wheels are a-turnin'; if you like high-performance machines, you gotta respect the monster truck.

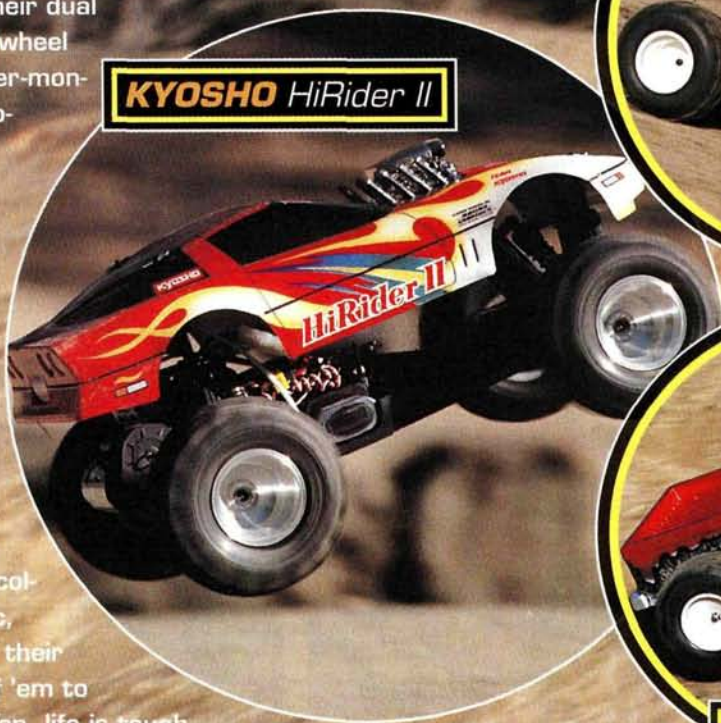
Reflecting monster trucking's popularity, the car-crushing machines have long been staples of R/C modeling (note the perennial success of Tamiya's Clodbuster and Kyosho's USA-1). While technically impressive with their dual motors, 4-wheel drive and 4-wheel steering systems, these super-monsters are not particularly economical or easy to maintain. For most big-wheel buffs, 2WD monster trucks are the answer. Often faster and more durable—and certainly more affordable—the "sport" trucks from Kyosho*, MRC*, Tamiya* and Traxxas* are just the ticket for all-terrain climbing and crushing.

So which one is right for you? To help you decide, we collected every available electric, 2WD big-tire truck, listed all their specs and ran the wheels off 'em to see which performed best. Yep, life is tough.

KYOSHO Tracker



KYOSHO HiRider II



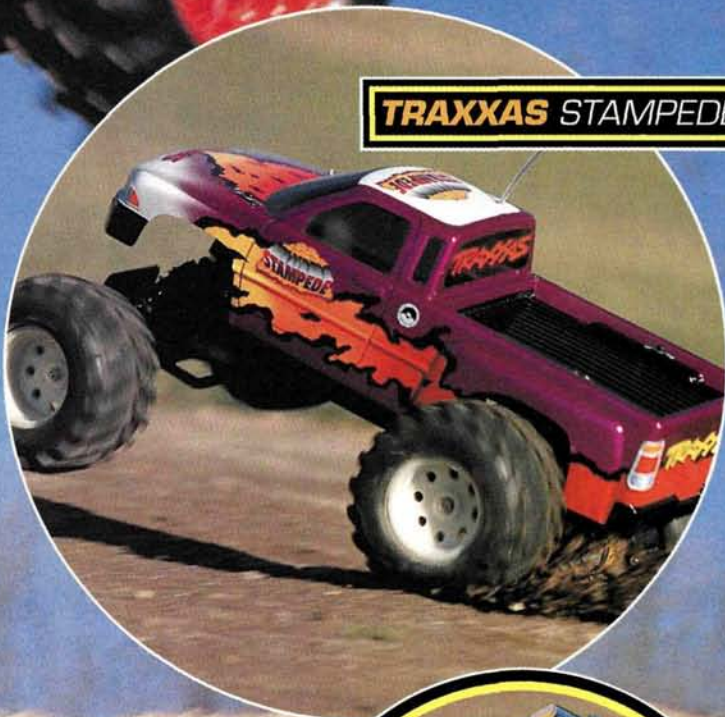
MRC MT-10M



PHOTOS BY WALTER SIDAS



TRAXXAS STAMPEDE

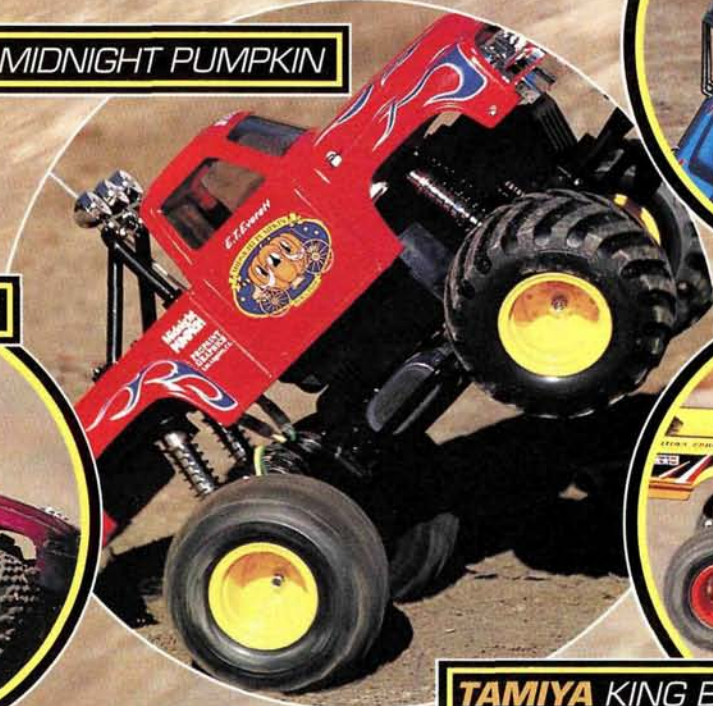


TRAXXAS SLEDGEHAMMER

TAMIYA MIDNIGHT PUMPKIN



MRC IRONMAN



TAMIYA KING BLACKFOOT



Although their bodies differ, Kyosho's two machines are mechanically identical, so we'll consider them as one design.

PAINT BY BODIES BY BRANCHE*

TRANSMISSION

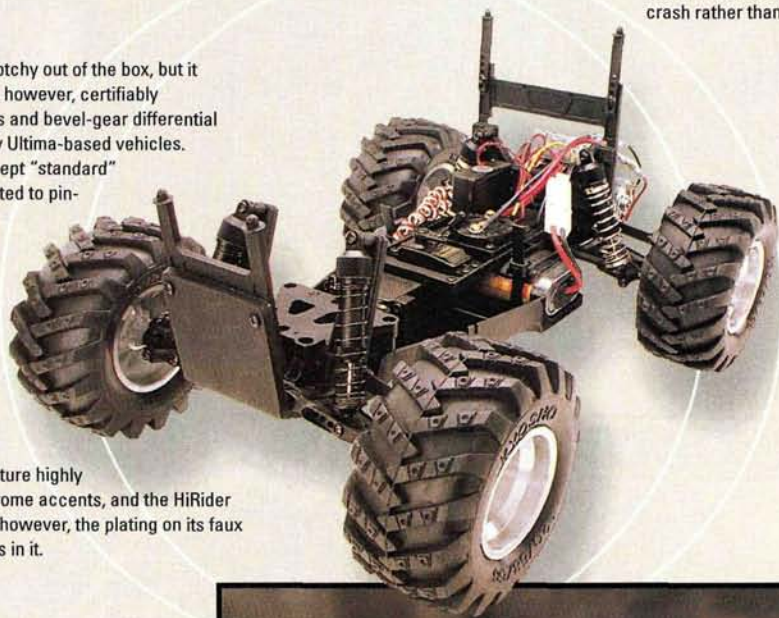
The Tracker/HiRider tranny is a little notchy out of the box, but it smooths out after a pack or two. It is, however, certifiably bombproof, thanks to its 32-pitch gears and bevel-gear differential and has proven itself in Kyosho's many Ultima-based vehicles. Unfortunately, the tranny does not accept "standard" spur gears, so gearing options are limited to pinion changes. Metal bushings are used throughout.

ELECTRONICS

A 3-step mechanical speed control with reverse and 540 motor are standard. The Tracker is also available ready to run with radio already installed.

OTHER STUFF

Both the HiRider II and the Tracker feature highly detailed bodies with lots of bolt-on chrome accents, and the HiRider also includes beautiful plated wheels; however, the plating on its faux blown engine had some weird blotches in it.



PAINT BY MOTION GRAPHICS

KYOSHO HiRider II



WHAT'S HOT

- Scale appearance with lots of chrome.
- Second fastest trucks tested.

WHAT'S NOT

- Tires rub the HiRider's body.
- Plating on the HiRider's mock engine was blotchy.

PERFORMANCE

Both Kyosho machines proved to be generally sure-footed and a lot of fun. Unfortunately, the HiRider II's Corvette body isn't a good mix with the big off-road rubber: the front tires rubbed the fender wells almost constantly and actually locked on tight turns. A pair of scissors can solve the problem, but it's a shame to hack up that pretty Vette body. The Tracker's unencumbered treads allowed it to handle much better. Although still stable, the Kyosho trucks' shortish suspension arms made them feel less planted than the wider Traxxas and MRC machines. On the plus side, the narrower track is a bit more "scale"—if realistic looks are important to you.

CHASSIS

The Tracker/HiRider's main frame is a molded plastic tub that favors durability-enhancing flexibility over performance-enhancing rigidity. An upper deck provides a home for the speed-controller servo and secures stick-packs via zip-ties.

SUSPENSION

Lower A-arms culled from Kyosho's Ultima parts bin are matched with molded upper links to speed assembly and ensure correct camber settings. Originally buggy parts, the suspension pieces are a bit short for truck duty, and that results in a rather narrow stance. Long-travel, oil-filled plastic shocks provide light damping when built to factory specs and are joined to plastic shock towers that will "give" in a crash rather than cracking or breaking.

MRC MT-10M

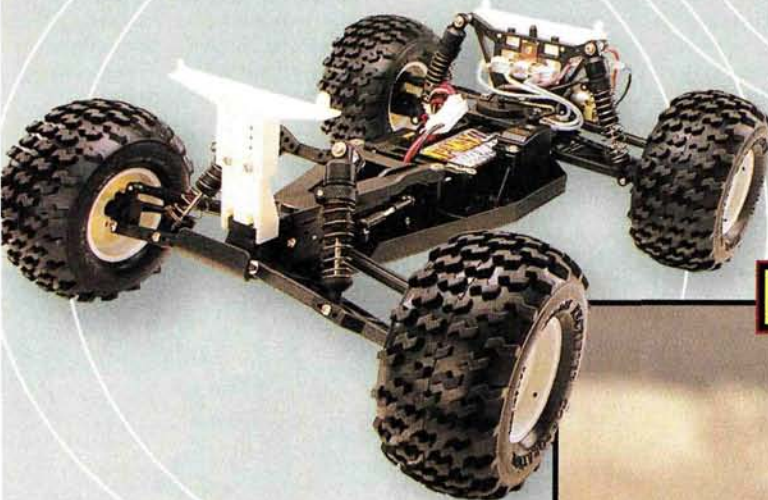


PAINT BY BODIES BY BRANCHE

Like Kyosho, MRC also uses one platform for its two trucks; the machines are the same, except where noted.

TRANSMISSION

Both trucks use a race-inspired 3-gear transmission with bottom-mounted ball differentials. The MT-10M, however, adds a slipper clutch to the spur gear (a highly desirable feature), whereas the Ironman uses a conventional fixed spur gear. Neither machine accepts standard spur gears, so MRC replacements must be used. (The Ironman includes 72T and 78T spur gears—nice touch.) Both trucks' trannies whine loudly, even though the pinion/spur mesh was properly set at the factory.



ELECTRONICS

A 540 motor and 3-step mechanical speed control with reverse are standard. Both trucks are also available RTR with Futaba Magnum Sport radios; that's how we ordered ours, and we didn't find any glitches in the factory assembly.

OTHER STUFF

The tread patterns for the Ironman and MT-10M differ; the Ironman gets snazzy Z-knobs, while the MT-10M's six-sided lugs are a little more tame; however, both worked equally well. On a purely esthetic note, we prefer the Ironman's sharp Dodge body to the MT-10M's Ford shell.

PERFORMANCE

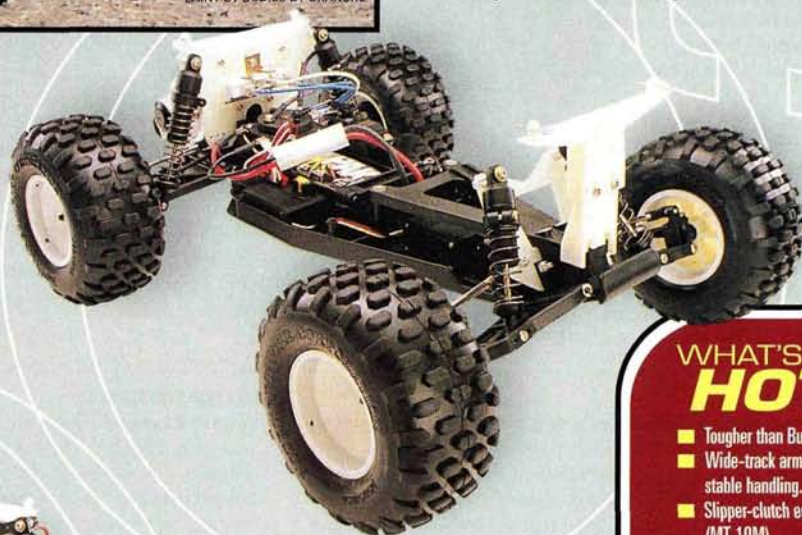
We expected a lot from the MRC trucks; with their low, wide stance, we figured they would have the raciest handling. Although both trucks performed well, their motors felt very "soft" and offered little torque. Speed was good (only the Traxxas trucks were faster), but more bottom-end grunt would make the MRC machines a lot more fun. The trucks are undeniably tough; we couldn't break 'em. That must be why MRC can offer a one-year "no-breakage" guarantee.

CHASSIS

A rugged, molded tub holds a 6-cell pack along the chassis centerline—a configuration common to racing designs. A battery tray with high walls and a beefy front-end brace deliver exceptional rigidity.

SUSPENSION

MRC's monsters take different paths here. The MT-10M features adjustable, threaded camber links and fiberglass shock towers, while the Ironman uses plastic, fixed camber links and plastic shock towers. Both trucks use the same extra-long A-arms and oil-filled, plastic shocks.



WHAT'S HOT

- Tougher than Buddy Lee.
- Wide-track arms provide stable handling.
- Slipper-clutch equipped (MT-10M).

WHAT'S NOT

- Poor acceleration (top speed is healthy though).
- Excessive transmission whine.

MRC IRONMAN

PAINT BY MOTION GRAPHICS





TAMIYA KING BLACKFOOT

PERFORMANCE

The King's suspension is relatively stiff, more because of parts binding than because of spring stiffness. Because of this, it tends to bounce around quite a bit and rely on its tires for much of its suspension. The truck was nevertheless a blast to drive; it jumps well, does wheelies on command (but not so easily that all you do is wheelies) and is plenty rugged.

CHASSIS

The King Blackfoot uses Tamiya's time-tested plastic space frame chassis, which first saw duty on the classic Frog kit. It has served well and provides a rugged, reliable platform for the 'foot. A spacious radio cover protects the electronics from dust, dirt and the occasional splash.

SUSPENSION

Plastic friction shocks are used on all corners. Although they lack the smooth feel of oil-filled units, they are simple to assemble and require virtually no maintenance. The shocks are joined to the fixed camber links rather than to the suspension arms, and this contributes to the 'foot's high riding stance. A-arms are used on both ends in preference to the laydown rear shocks and trailing arms of days gone by.

TRANSMISSION

The Blackfoot's rugged gearbox features a massive differential with Tamiya's familiar bevel-gear internals. With only two meshing internal gears to complement the spur/pinion mesh, the tranny is essentially a "two-gear" design. The motor is held high on the gearbox; that doesn't help to lower the truck's center of gravity much, but it does keep it away from much of the crud it's sure to be subjected to. Dogbone drive shafts get the "go" out of the tranny and into the wheels.

ELECTRONICS

Basic stuff here; a reliable 3-step-with-reverse mechanical speed control and 540 motor are supplied. Sorry; no "RTR" options on the King Blackfoot (but hey, building a Tamiya kit is half the fun of owning one).

OTHER STUFF

Some Tamiya kits still use injection-molded "hard" bodies, and the King Blackfoot and Midnight Pumpkin are two of the chosen few. The Blackfoot's body is molded in black (surprised?) and incorporates bolt-in smoked "glass," a chrome grill and a roll bar. Add the included decals, and you have a great-looking truck without having to paint (note: Motion Graphics* painted ours). The downside of the hard shell is its weight (who cares?) and replacement cost (that, we care about).



WHAT'S HOT

- Injection-molded body is easy to finish.
- Tough, fun and classic.

WHAT'S NOT

- Stiff suspension makes for a bumpy ride.

PERFORMANCE

If you're looking for the wheelie machine du jour, the Midnight Pumpkin is it. No need to back up and "pop the clutch" to lift this truck's front end; just goose it and the Pumpkin rears up on its back wheels every time and then carries 'em on its oh-so-cute wheelie bar. When it's time to play in the dirt, the bouncy little truck is outclassed by every truck here; it's the slowest, climbed lowest and handles like a shopping cart, but that doesn't affect the fun factor. The Midnight Pumpkin is like a cartoon come to life, and that's what makes it fun. Plus, it's a genuine R/C classic.

CHASSIS

Don't look for a conventional chassis here; the Pumpkin uses an unusual unibody-like setup that features molded berths for the receiver and servos and shelf-like supports for the shocks instead of shock towers. The battery is held low in the chassis in a quick-release tray.



WHAT'S HOT

- Goofy, laugh-out-loud fun.
- Looks good enough to put under glass.

WHAT'S NOT

- The Pumpkin tips over easily; its suspension is bouncy, and it isn't very fast (yet we all loved driving it).

OTHER STUFF

This is another hard-body kit, but the Midnight Pumpkin's shell is molded in natural white, so you'll have to break out the enamel spray paint. Chrome accent pieces bring the truck to life, and the finished product is a looker even with a single-color paint job.

SUSPENSION

Part of the Pumpkin's charm lies in its Flintstones'-era suspension that omits front camber links in favor of a one-piece arm-and-hub-carrier design. As the suspension arms travel through their range of motion, the front wheels swing from positive camber to negative camber, and there's plenty of bump steer added to the mix. The rear of the truck uses a solid axle design wherein the motor, transmission and rear axle are suspended as a unit. Brightly plated friction shocks offer the ride quality of a pogo stick.

TRANSMISSION

Despite the truck's diminutive size, it sports a massive gear differential and equally overbuilt transmission gears. The motor is mounted high, and that contributes to the Pumpkin's considerable wheelie-popping ability (as evidenced by the tranny-mounted wheelie bar).

ELECTRONICS

Tamiya's standard 3-stepper and 540 motor are included.

TAMIYA MIDNIGHT PUMPKIN



TRAXXAS SLEDGEHAMMER



PAINT BY MOTION GRAPHICS

SUSPENSION

Eight(!) oil-filled shocks suspend the truck and add some real cool to the look of the machine. The suspension arms are buggy-size pieces, however, and depend on well-offset hubs and wheels to give the Sledge its width. Turnbuckles are used all around, so the truck is fully adjustable for front and rear camber and front toe-in. Like the Stampede, the Sledge eschews steering bellcranks in favor of a direct link between servo and steering knuckles.

TRANSMISSION

The Sledgehammer is showing its age here; the tranny holds most of its gears outside the gearbox, and the 32-pitch tooth pattern doesn't spin as smoothly as the Stampede's finer, 48-pitch gears. The gearbox, however, is suitably rugged, thanks to the bearing-supported brass drive gear, aluminum motor plate and planetary gear diff. Telescoping universals get the "go" from the tranny to the wheels.

ELECTRONICS

Our ready-to-run Sledgehammer includes a Traxxas Top Qualifier radio and XL-1 reversing ESC complete with billboard-size heat sinks. Likewise, the included 540 motor is equipped with a finned, wraparound heat sink. Traxxas knows the average Sledge pilot won't be gentle with these components; we weren't.

PERFORMANCE

It's hard not to love the Stampede. On one hand, with its high chassis, big tires and molded ladder bars, it nails the look of a monster truck. On the other hand, it's rock-stable because the transmission, motor and suspension assemblies are held low, and the extra-wide suspension arms (lifted from the SRT race truck) give it a huge "footprint." A fast kit motor is the icing on the cake; you'll be able to log plenty of wheel time before you feel the need to upgrade the Stampede.

CHASSIS

The Stampede's molded chassis is purpose-built for monster trucking and has never seen duty as a buggy. As such, the chassis' center span is much higher than the transmission and suspension bulkheads. This allows the Stampede to roll over obstacles that would "high center" most other trucks and stop them in their tracks. Braces molded to resemble ladder bars join the transmission and suspension bulkheads to the chassis.

ELECTRONICS

The Stampede's mechanical speed control is a basic three-stepper, but the motor packs some extra punch by way of its 20-turn armature. It's a powerful mill, as evidenced by the Stampede's strong acceleration and best-of-class top speed. We tested the ready-to-run Stampede with Traxxas' own Top Qualifier radio system.

OTHER STUFF

The Stampede's smallish body makes the already beefy chassis and wheels seem even beefier. Complete "ground-up" assembly instructions are included with the RTR kit.

PERFORMANCE

The Sledgehammer likes to do wheelies, and it likes to roll over—a lot. If you're cornering on a surface that offers anything resembling decent traction, the Sledge will turn turtle on you. Though this isn't exactly a good thing performance-wise, we did have a lot of fun rolling the truck onto two wheels Joey Chitwood-style. The Sledge jumps well, but the suspension is a bit stiff, so it likes to bounce. It's a speedy truck, but acceleration isn't a strong point; with the exception of the Midnight Pumpkin, all the other trucks showed the Sledgehammer their taillights in a drag run.

CHASSIS

The Sledgehammer is built around a plastic tub chassis that's reinforced by blue-anodized T6 aluminum plates. The plates allow the transmission and suspension assemblies to hang beneath the chassis; this increases maximum ground clearance and gives a true monster-truck look. A foam-padded battery cradle and fiberglass hold-down make pack changes easy.



OTHER STUFF

The Sledge's wide body includes plated detail pieces, and spring-loaded body mounts ensure that the body won't be ripped off when the truck rolls onto its lid. The satin chrome wheels are a nice touch.

WHAT'S HOT

- Eight shocks!
- Realistic high-chassis profile.
- Fully adjustable suspension.

WHAT'S NOT

- Short suspension arms make for a tippy ride.
- Lackluster acceleration.

SUSPENSION

Fixed links accompany lower A-arms to suspend the truck, and plastic oil-filled shocks take the sting out of bumps. The thick, long arms reach deep into the wheels for increased stability and sensitive suspension action, and they're well damped by oil-filled, plastic-body shocks. Fixed camber links are used, but the steering tie-rods are turnbuckles. These join the hubs to the steering servo directly—no bellcranks.

TRANSMISSION

The Stampede's 3-gear tranny design was inspired by racing-truck designs, and it spins smoothly, thanks to the bearing-supported top shaft (metal bushings are used elsewhere). Standard spur gears may be used to adjust the gear ratio, and telescoping universal drive shafts link the tranny to the rear hubs. The only sour note is the tranny's plastic motor plate, which does little to aid in heat dissipation.

TRAXXAS STAMPEDE



PAINT BY MOTION GRAPHICS

WHAT'S HOT

- Real monster-truck profile; chassis is not hung beneath the body.
- Wide-track suspension.

WHAT'S NOT

- Plastic motor plate.

2WD ELECTRIC MONSTER TRUCK GUIDE

	KYOSHO TRACKER/HIRIDER II	MRC IRONMAN	MRC MT-10M	TAMIYA KING BLACKFOOT	TAMIYA MIDNIGHT PUMPKIN	TRAXXAS STAMPEDE	TRAXXAS SLEDGEHAMMER
Wheelbase	10.9 in./277mm	11.1 in./282mm	11.1 in./282mm	10 in./254mm	8.18 in./208mm	10.8 in./275mm	10.23 in./260mm
Width	11.5 in./292mm	12.8 in./325mm	12.7 in./322mm	11.6 in./295mm	11.2 in./285mm	12.6 in./320mm	12.4 in./315mm
Weight (RTR)	75.1/77.7 oz. (2129.1/2,202.8g)	76.6 oz./2,171.6g	75.3 oz./2,134.8g	86.5 oz./2,452.3g	75.3 oz./2,134.8g	79.3 oz./2,248.2g	87.9 oz./2,492g
Maximum ground clearance	2.17 in./55mm	2.24 in./57mm	2.24 in./57mm	2.28 in./58mm	2.28 in./58mm	3.74 in./95mm	3.74 in./95mm
Differential type	Bevel gear	Ball	Ball	Bevel gear	Bevel gear	Planetary gear	Planetary gear
Adjustable camber	No	No	Yes	No	No	No	No
Accepts "standard" gears	No	No	No	No	No	Yes	Yes
Slipper clutch	No	No	Yes	No	No	No	No
Speed control	3-step	3-step	3-step	3-step	3-step	XL-1 ESC	XL-1 ESC
Motor	540 type	540 type	540 type	540 type	540 type	20-turn 540	20-turn 540
Factory assembly available	Yes/no	Yes	Yes	No	No	Yes	Yes
Drive shaft type	Dogbone	Dogbone	Dogbone	Dogbone	Straight axle	Universal sliders	Universal sliders
Jumping	8	10	10	8	6	8	10
Durability	9. Broke a hub.	10	10	10	9. Broke a steering arm.	10	10
Acceleration/speed	9 pts./16.2mph	7 pts./16.9mph	7 pts./16.9mph	8 pts./16.5mph	5 pts./13.6mph	10 pts./18mph	6 pts./17.2mph
Stability	8	10	10	7	6	9	6
Climbing	9	6	6	7	4	10	7
Instructions	9	8	8	10	10	9	8
Ease of assembly**	9	RTR	RTR	10	10	RTR	RTR
Factory assembly quality***	Kit	9	9	Kit	Kit	9	9
List price	\$169.99	\$315.95 (RTR w/radio)	\$328.75 (RTR w/radio)	\$167	\$220	\$290 (RTR w/radio)	\$350 (RTR w/radio)
Street price*	\$109.99	\$199.99	\$199.99	\$119.99	\$110	\$179.99	\$209.99

*Price varies with location **No rating given to RTR kit ***No rating given to unassembled kits

TORTURE TESTING SECRETS REVEALED



■ JUMPING

We did all our testing at Bethel Supercross in Connecticut—our local NBL-sanctioned BMX track. You thought Montana was big sky country? Guess again! We rated the trucks' jumping by launching each over the track's many jumps—everything from smooth rollers to steep launchers. Trucks that launched "flat" and didn't require a lot of midair correction scored high; those that showed a tendency to loop or endo when left to their own devices scored lower.

All tests were performed with box-stock vehicles!



■ DURABILITY

The toughest tests of durability were the landings during the jumping tests. Otherwise, we simply slammed the trucks into rocks, roots and one another until the battery dumped or something broke. We subtracted one point for each part that detonated.

■ STABILITY

We rated the trucks according to how sure-footed they felt when we drove them, and we also "measured" stability with our specially constructed, precisely calibrated, hideously expensive tip-o-tronic device. The steeper the angle each truck could sustain without tipping over, the better its rating.



■ SPEED/ACCELERATION

This was easy: we drag-raced 'em on a 100-foot strip—winner take all with 10 points, second earned 9, third got 8, etc. The drag-race results are a good test of acceleration, but top speed is a different story. To see which truck has the fastest terminal velocity, we gave each a full-speed run through a speed trap.



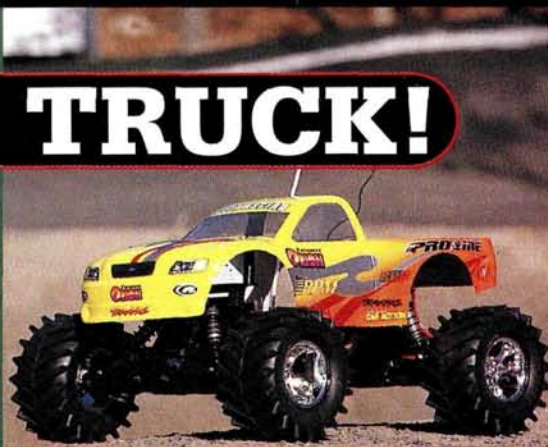
■ CLIMBING

Prepare for rocket science. We drove each truck up the gnarliest pile of dirt we could find until it reached the top, got stuck, or flipped over. The higher the truck got, the higher its score.



PROJECT JUMP TRUCK!

Without question, jumping is the number-one fun thing to do with 2WD monster trucks. It's all about hang time, baby! Swabmeister Greg Vogel dialed in his own Traxxas Stampede for superior airborne performance, and the completed machine can leap into low earth orbit and come back for more. Greg's "Super" Stampede also displays many of the trick hop-ups you can use to increase the performance and style of your own 2WD monster truck.



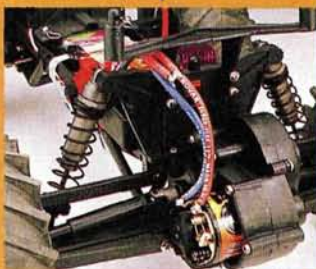
Left: sooner or later—probably sooner—your truck's stock body will get thrashed. Why not transform your truck with a new look? Pro-Line's new Ford F-150, custom-fit for the Traxxas Stampede, is shown.

Other mods can be spotted here; aluminum Big Bore shocks from Traxxas; aluminum hinge pin brace from Trinity; 10(!) Orion matched cells; and Acer Racing* Power Pole connectors. You can't see the bearings, which are a must-have upgrade for any R/C vehicle. Greg used a set from Boca Bearings*.



MO' MOTOR!

All of the trucks we tested can benefit from more powerful motors (some more than others). Greg chose a competition-ready hand-wound Orion* 14 triple for his rig, but something much less expensive can deliver impressive performance. Machine-wound mods in the 16- to 19-turn range work well in the big trucks; Trinity's* Gem and Monsters of Touring motors are good choices, and Orion's new Pilot line also offers hot winds at low prices. Look closely, and you'll spot the Traxxas steel outdrive yokes and RPM camber links installed for extra strength.



SLIPPER CLUTCH ▲

If your vehicle's maker lists a slipper clutch as an available option, get one—especially if you've added a hotter motor. The slipper clutch allows the spur gear to slip if the transmission is overstressed, so gears won't strip or break teeth. If you intend to subject your truck to rough terrain and a lot of air time, this is a must-have. Greg also added Robinson 32 pitch gears for maximum durability, and bolted in a Tamiya TAO3 motor plate to help stiffen the motor mount area.

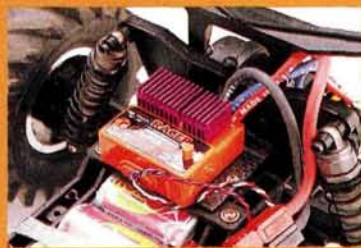


CHROME WHEELS ▲

Check with your manufacturer for chrome versions of your kit's stock wheels, or pick up a set of HPI's* Universal Wheels (right). For Traxxas owners, RPM's* Claws (shown on truck) and Talonz (shown here) are the hot hoops to have. Those are Pro-Line Masher tires, by the way.

ELECTRONIC SPEED CONTROL (ESC)

Forget the herky-jerky "speeds" of mechanical speed controls; an ESC will give you fine throttle control and help extend run time. In addition, an ESC is much lighter than the servo, mechanical speed control, resistor and wiring it replaces. Greg installed a Novak* Racer forward-only ESC, but most monster-truck action calls for reverse; see the reversing speed control guide in the September '98 issue for the specs on all the available reversing ESC options. Most reversing ESCs feature motor and battery connectors for quick, no-solder installation.



This Specialized rider picked a great day to practice; here's a real jump for ya! Actually, this 10-foot-plus blast was one of the tamer launches of the day. How wild did we get? Well, the truck did 50.3mph when we clocked it, and we did a few full-throttle jumps. Get the picture?



*Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■

Super Touring takes off in Southern California

California R/C Center in Orange County recently added a new Super Touring Class to its popular parking-lot racing series. Designed for larger, nitro-powered touring cars like the Tamiya TGX, Kyosho Super Ten and HPI's new Super Nitro RS4, this class should be a big hit with racers and spectators alike.

Due to crummy weather, the turnout at the first event was rather small, but there were almost enough registered racers to fill a complete heat of super tourers. The class was dominated by HPI cars, but I heard many racers who were watching the action say that they planned to fix up their Kyosho and Tamiya cars to do battle with HPI's new offering. These larger cars are more stable and faster on the top end than 1/10-scale nitro-powered touring cars, and that makes them a blast to drive and a pleasure to watch.

Who knows? This class may grow in popularity and become the next big craze. In the meantime, I'll keep you posted on the progress of this exciting new class.

GET UP TO SPEED WITH ...

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Robinson Racing gears up HPI's Nitro RS4 Series

R/C's gear guy, Rob Robinson of Robinson Racing Products, announces the release of his new Nitro RS4 gear adapter with machined spur gear. The new setup will allow speedy gear changes with much less disassembly. According to Rob, to access the gear, you just remove the outer pulley. Spur gears in a variety of tooth counts will be offered to interface with the adapter, and all will be machined from RRP's heavy-duty black material. Rob also hinted at plans to produce 32-pitch clutch bells and spur gears for the Nitro RS4 line. The kit's stock gears are "1 module," which works out to 25.4 pitch—much coarser than 32-pitch. The new 32-pitch parts will give more gearing options and allow racers to dial in their machines more effectively.



Team Trinity Dominates Cleveland

Trinity's sweep at the most recent Cleveland Indoor Championships proves the company is still on top of the on-road-racing scene. David Spashett dominated the 1/12-scale mod class by taking the TQ and the win, while his teammate Josh Cyrul ended up in second. Cyrul cleaned up in 1/12-scale Pro Stock and Touring Car Stock—also by taking the TQ and the win in both classes. Also racing for Trinity was "bad boy" Barry Baker, fresh from his break up with Maxtec. Baker raced a Trinity Switchblade 12 in the 1/12-scale class, which he drove to sixth-place A-main finish. He also made a strong showing in Stock Touring Car by taking the second place podium spot with his Trinity-powered Yokomo YR4-M2 Pro. Street Spec and Sportsman classes also ran in Cleveland; for the record, Erik Louis picked up the win in Spec, and T.J. Bradley took Sportsman. Congratulations to all the winners.

RACER TIP OF THE MONTH

■ Billy Easton Team Associated factory driver

If you want your Associated off-road car or truck to run properly, proper shock assembly is critical. You can't go wrong if you follow the manufacturer's instructions to the letter, but here are a few tips to ensure that your shocks will work perfectly the first time and whenever you rebuild them.

Be sure to properly trim all of the pistons and O-ring-seal retainers. Before you insert the shock shafts through the O-rings, smear the rings with Factory Team Green Slime.

Fill each shock body with oil, and slide the shock shafts in and out to

remove any air bubbles that may be trapped inside. Next, partially fill the shock caps with oil and quickly screw the caps onto the shock bodies. Some oil will spill out, but don't worry; it's bound to happen.

The next step is probably the most critical. You'll need to either bleed each shock or add shock fluid to each until all four have exactly the same amount of rebound. If the shocks rebound differently, your vehicle will not launch or land squarely off jumps and will not track straight under acceleration.



RACER news

INNOVATOR AT WORK

Cliff Lett

Back in the day, Team Associated's Cliff Lett was considered to be the man to beat because he was one of the fastest R/C drivers of his time. Cliff is still extremely competitive, but you'll only see him competing at "extreme" R/C races such as the NORRCA Winterfest Super Oval and some of the more prominent 1/8-scale off-road events.

Cliff now spends most of his time designing and developing new products for Team Associated, and he recently put the finishing touches on the RC10TC3 4WD touring car. I talked to Cliff at the National Model and Hobby Show, where the new car was unveiled, and here's what he had to say.

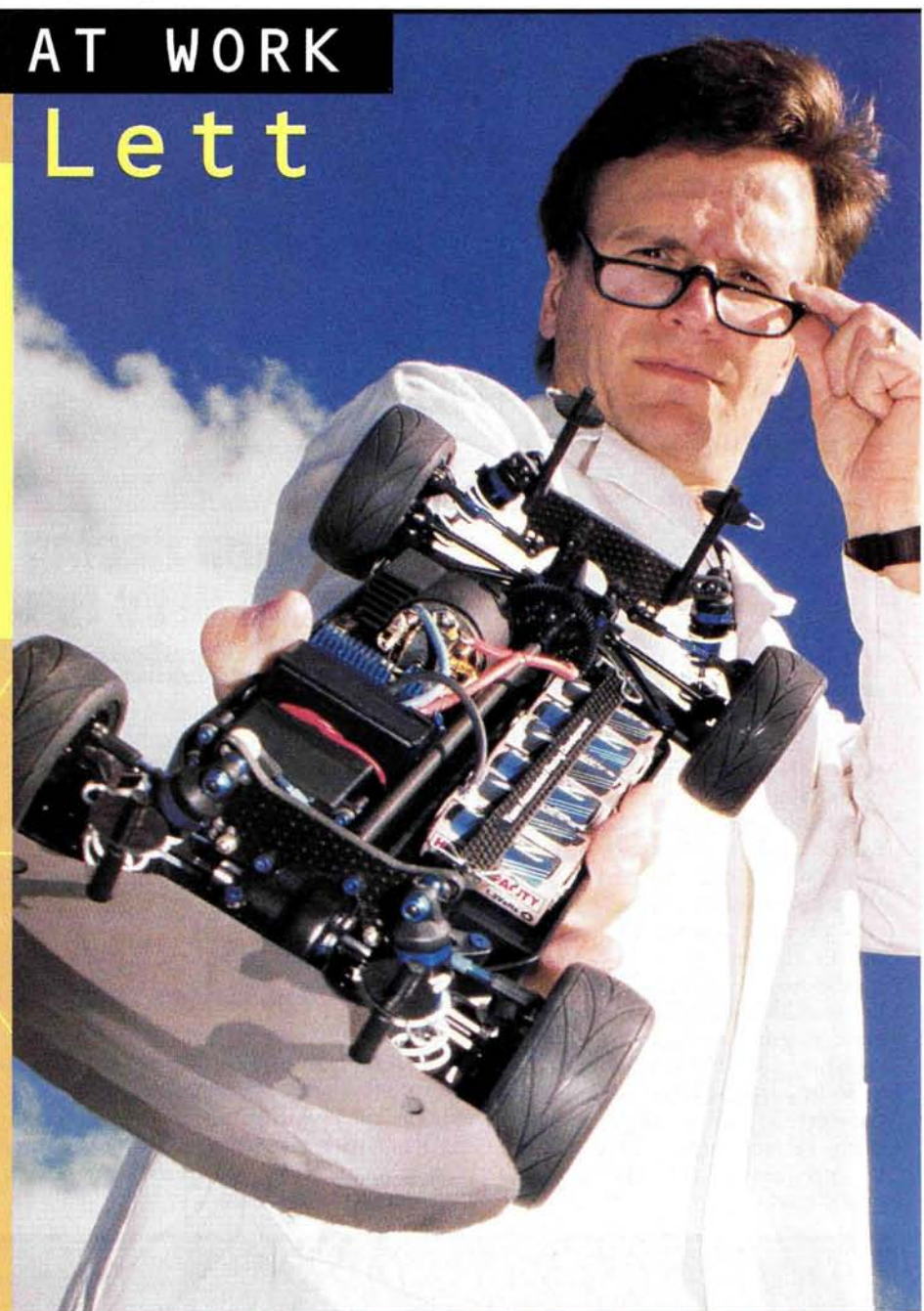
R/C Car Action: Let's start by reflecting on your past; I understand that you once worked for Yamaha Racing. Can you tell us a little about that?

Cliff Lett: I started racing motorcycles when I was 13 years old and turned pro at age 16. When I was 20, I was ranked number 19 in the nation and number two in California. I retired from racing when I was 21 and was hired by Yamaha Motor Corporation to manage their Amateur Racing Program. This was kind of like being a talent scout. A couple of years later, I was moved to the Pro Racing department and became Rick Johnson's personal mechanic. In 1984, we won the AMA 250 National Championship. After a couple of years, Johnson moved to Honda and I moved into the Yamaha R&D department. My duties were testing and tuning the prototype and preproduction race bikes. Yamaha employed me for nine years.

RCCA: How and when did you discover R/C racing, and what were your initial thoughts about the hobby?

CL: Around 1985, I happened across an R/C off-road race—somewhere in Whittier, I think. I could not believe how cool these cars were and how barbaric their suspensions were. Needless to say, I had to have one, so I went to a hobby shop and bought a Cox Tomahawk. Two weeks later, the Associated RC10 was introduced, and I bought two. I was totally hooked!

RCCA: How long was it before you realized that R/C racing was in your future? And how and when did you get hooked up with Team Associated?



CL: After a year or so of playing around, I started to compete at local races and met Jay Halsey. I couldn't believe how fast he was. He drove punched out of his mind and never crashed, so he usually won. I started to travel to races with him and his father, Jim, and they introduced me to Mike Reedy. Mike started to help me with motors and batteries, and along with the help of Halsey, I started to get fast.

During the '87 Team Associated Christmas Eve luncheon, I met Roger Curtis and Gene

Husting. We kind of joked around about my working for them, but as the conversation went on, it became more serious. Four months later, in April, I made one of the hardest decisions of my life. I left a promising nine-year career with Yamaha and went to work for Associated to design R/C model cars and trucks. Everyone at Yamaha thought I was nuts.

RCCA: Does your experience with Yamaha and motorcycle racing help you with your work at Team Associated?



CL: Absolutely. I would even say that my pro motocross riding experience has benefited my driving; just ask Richard Saxton. Some of the techniques used in riding motocross are much like those used for R/C off-road cars. I think that the suspension and engine development experience that I gained at Yamaha really helped me contribute some new thoughts to the design of the early gas and electric cars and trucks.

RCCA: What were some of your goals when you started with Team Associated?

CL: I was hired to follow Roger's footsteps and to continue to design new products while he managed the company. Immediately, I realized that I needed a refresher course to brush up on my physics, math and engineering skills, so I went to night school for a few years. I didn't go to college when I finished high school because I was traveling around the country racing motorcycles. Today, I regret not continuing my education and obtaining a degree in engineering.

RCCA: Which accomplishments of your early racer/designer days do you consider to be the biggest milestones?

Cliff takes the new TC3 for some hot laps at the Associated test track. No matter how sophisticated the computer model or design program, real-world testing will always be a critical component of R/C vehicle design.



CL: As a racer, I think I'm the only driver to ever win four ROAR National Championships in one year. In '91, while I was working full time at Associated and taking nine units of college courses in the evening, I won the IFMAR 4WD Worlds. I also won back-to-back Invitational class championships at the Reedy Race of Champions.

As a designer, the RC10B2 buggy was my first real "from-the-ground-up" car design. Taking it to the '95 IFMAR World Championships, where our team dominated, was like winning myself. Making the A-Main myself was also pretty cool.

RCCA: I remember the event well. What are your fondest R/C racing memories?

CL: There is one that I will never forget. In '92, I was contacted by Dream Makers, which is a non-profit organization that helps children and young adults deal with life-threatening illnesses. A young man in his late teens was battling cancer and had asked Dream Makers whether he'd be able to spend a week racing with the late Davey Allison [NASCAR driver] or me—not much of a choice, right? Davey Allison and I were contacted, and we both accepted. Well, you can imagine what an honor it was for me when I was chosen in preference to such a celebrity figure and to be given the opportunity to make a difference in someone's life. To this day, we are still in touch, and this young man has become quite an R/C racer.

RCCA: That's really cool Cliff, but I would have chosen to spend a week racing with you as well; I could use all the help I can get! Were you given any formal training on chassis and suspension design, or did you learn by experimenting?

CL: I have very little formal training in the area of chassis and suspension design—or engineering, for that matter. I'm lucky to have Roger around to help me with some of the more complex design challenges. I've managed to expand my education in night school—math, physics and business management—and it



Here's Cliff in a familiar pose; this win was at the '97 Hemet Gas Challenge.

has helped me apply my many years of practical, hands-on, experience.

RCCA: How have computer-aided design and machining helped with product development?—compared with how the same job was done in the past?

CL: Well, when I started at Associated, they were still using a hammer and chisel to make blueprints on stone tablets—just kidding, Roger! OK; so it took me a while to convince them that we needed a computer. Roger and I spent quite a bit of time looking over software before we decided on what to use. I can't imagine not being able to design with a computer now.

Our product design and tooling processes have been streamlined tremendously, but lately, it seems I have a difficult time getting away from the computer to go to the track.

RCCA: What do you think are the biggest differences—good or bad—between racing now and when you started.

CL: When I started racing in the late eighties, most of the tracks were outdoors; there were families at the track, and the moms were usually barbecuing burgers; dads were tuning the cars, and junior was out tossing a football with his buddies; it didn't matter which brand of car you drove; there were no big teams and no big tents to separate them; the factory didn't have "hired assassins" to go out and beat the average Joe racer; the tracks were not as hard as asphalt; and tires had things called "knobs" on them.

RCCA: That's a pretty comprehensive answer! Let's change gears and talk about what's happening today. The biggest topic is the growing popularity of touring-car racing, and at the RCHTA show in Chicago, thousands flocked to the Team Associated booth to see the new RC10TC3 touring car. Why did it take Team Associated so long to release a touring car?

CL: We had been watching the touring-car market for some time to see which way it was heading, and we developed a pretty good idea of what we wanted to make. Unlike most manufacturers, Associated has 12 different types of cars, buggies and trucks to keep up-

Continued on next page



RACER news

Continued from previous page

to-date through the efforts of a very small design staff. To be quite honest, we only recently had time to create a touring car.

Another reason the TC3 project took a little longer is that it was designed as a touring car only; it isn't a converted off-road buggy. And by the way, you'll never see an off-road buggy version of the TC3. In total, the TC3 has been in development for about a year and half now, and if everything goes as planned, it should be in the hobby shops in late March.

RCCA: I heard that Team Associated purchased one of every available touring car. Is that true?

CL: We didn't have every available touring car, but we did have the better ones. Early in the design process, most car and motorcycle manufacturers test competitors' products to see what they like or dislike about them. To design the best product, you need to know what's available in the marketplace. Then, by the time you have built a prototype test vehicle, you see whether your competitors' products have been updated, and you compare your prototype with their best in comparison track testing. I'm sure that most manufacturers follow these steps.

RCCA: With regard to the TC3, did you establish particular goals or design parameters before doing any preliminary drawings?

CL: We knew that everyone would expect something great from us. Whatever we made, it would have to be right. The 4WD touring-car class seemed to be heading in the direction of pan cars. You know—almost no suspension, super-stiff springs, foam tires; heck, they even race touring cars on carpet. This told us that the CG [center of gravity] had to be as low as possible, and that meant that battery mounting was of utmost importance. We also needed a drive train that would be more efficient than standard drive belts. We studied the design of precision bevel gears and found a method that would give us quite an advantage. The bevel-gear design was extremely expensive to prototype and tool up, but we felt that we had to do it.

RCCA: How did Associated come up with the name "RC10TC3"? I can understand the "RC10TC," but what is the significance of the "3"?

CL: We try for continuity of our kit names, and we also want to leave the door open for future versions. The "TC" obviously stands for touring car, and the 3 indicates the generation of vehicles we are currently designing.

RCCA: Who was the first to drive a prototype of the new TC3, and what was his overall impression of it?

CL: Mark Pavidis was the first to drive the prototype. I remember him saying how much punch the car had and how well it handled for the first time on the track. Jason Ruona was the first driver to test the car on a permanent championship track. Mike Reedy and Jason stuck around after the NORCCA Road Course Nationals in Las Vegas, and I flew in with the prototype. Jason qualified into a lower Main at the Nats, but the following day, when Jason took a few laps with the TC3 prototype, he logged lap times that would have put him in third on the A-main grid. I think he liked the car.

RCCA: After seeing the response to the car at the Chicago show, what do you think the R/C industry thinks of it?

CL: At first, I think that everyone was in shock that we would build something so different, but the response at the show was overwhelmingly positive. The most asked question was "When can I get one?" A few people said that it looked like a Tenth Technology Predator. This is to be expected, since both cars have a shaft running down the middle of the chassis, and that is the feature people seem to focus on. I think a direct comparison would be like calling the Team Losi Street Weapon a Yokomo YR4-M2 or saying an apple is an orange.

RCCA: To ensure that our hobby/sport continues to grow, should we concentrate on any particular areas?

CL: I think that racing organizations should try to schedule major events in public places where more new people can be exposed to the hobby—shopping malls, fairgrounds, convention centers during shows and during full-size car races. Hobby Shack, Kyosho and Trinity are all trying this, and it seems to be working. Oh, and organizations should try not to schedule racing events on holidays.

RCCA: Although racing is important and fuels the development of new technology, do you think manufacturers overemphasize the importance of competition?

CL: The level and number of sponsored drivers is out of control. A reasonable number is fine, but I'm against paying drivers a salary. I feel that this is counterproductive to business, racing and the hobby as a whole. When a manufacturer pays a driver, everyone must do it. Then there is nothing gained except higher costs for everyone to do business and go racing. The money to pay for these drivers has to come from somewhere, and it usually shows up as higher product prices or lower company profits. In our hobby, a driver is given a salary and offered bonuses for winning. This changes the racer's outlook from "I'm doing this for fun" to "I must do this to get paid." Family, education and real jobs become less of a priority than racing. I've seen team drivers drop out of school, quit their jobs and live in their cars. In my opinion, this exploits drivers and gives them a false view of their prospects.

I think the money could be better used to promote the hobby outside the current boundaries. I'm always hearing "Wow! I didn't even know this hobby existed." This tells me that we're so worried beating the other guys that we're losing sight of the real goal here—promoting the hobby.

RCCA: I guess I had that answer coming. I almost feel I should end this interview with a disclaimer! Of course, if anyone out there would like to debate this issue, I invite all points of view; my email and phone lines are always open.

As always, it's been great to talk to you, Cliff, and I thank you for this interview. The entire staff of *R/C Car Action* wishes you success and happiness in all your future endeavors.





RACER news

Speed Shop



May the downforce be with you

Not all oval racing is done on high banks; most of us "regular folks" duke it out on flat rings, where the only "banking" is the pre-race trip to the ATM. To win on flat ovals, traction is key, and to find traction, aerodynamic downforce is critical. In response to racer requests, Protoform has released a high-downforce version of its popular and race-proven Ford Taurus shell. The new body is slightly wider across the nose to provide increased steering and stability on low-bank (or no-bank) tracks. It's available in "lite" and "regular" weights and includes a spoiler, a decal sheet and window masks.

Protoform 1999 Taurus High-Downforce SS stock-car body—1217L (lite), 1217R (regular).

Lightning strikes the R/C racing scene!

This product should be familiar to all you BMX'ers and mountain bikers out there (roadies, too, if you're one of the few and the proud). Originally developed for bicycle chains, this white (hence its name), PTFE-based lube goes on wet but bonds a lubricating film to parts as it dries. The film is "self cleaning" because it sloughs off moving parts in microscopic bits, carrying dirt with it. Cliff Lett used the stuff to lube the pinion and spur gears on his winning, 90mph+ Insane Speed Run and Mod-class RC10L30s at the NORRCA Winterfest. According to senior editor Steve Pond, who attended the event, Cliff's cars were virtually silent and operated flawlessly during their runs. Look for White Lightning at your local bicycle shop.



PSE gets it straight

As any racer knows, having the correct brush-hood alignment is critical to top motor performance. Parma/PSE's Brush Hood Alignment

Tool makes it easier than ever to get the hoods lined up properly. No need to remove the brushes; just loosen the endbell hardware and slide the



machined-aluminum PSE tool onto the brush-hood tops to instantly align them. One end of the tool fits hoods for laydown brushes; the other handles standup hoods.

Part no. 90144.



RACER news

NORRCA

by George M. Gonzalez

Road Course Nationals

EVERY YEAR, 1/12- and 1/10-scale on-road drivers—and now touring-car racers—come from all over the USA and the world to Western R/C Raceway in Las Vegas, NV, for the NORRCA Road Course Nationals. It's now one of the best-attended on-road races of the season. That it's held in one of America's favorite nighttime playgrounds might just have something to do with its appeal, but the limited wrenching time allows very few racers the chance to walk the famous Las Vegas strip. But there's always more than enough action at the track to keep everyone entertained.

QUALIFYING AND MAIN EVENT OVERVIEW

Each class ran three qualifiers that featured IFMAR timed starts, and the winners were determined by a triple A-main. To keep things fair for the expert drivers who were not fully sponsored, a Factory class was added. As usual, the action was intense and the touring-car classes had the lion's share of contestants.

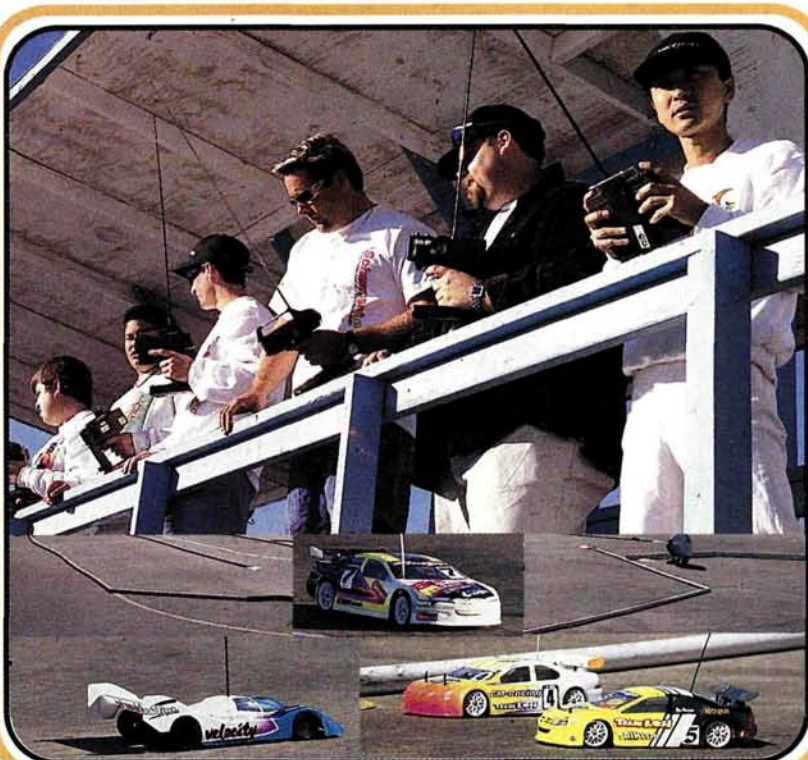
• **1/12 Expert Stock.** Dan Miles traveled from Livonia, MI; he dominated with his brand-new Team Associated RC12L3 and was the only driver with a 29-lap run. Charley Barnes—also driving an Associated car—picked up the spot next to the poll. During the Mains, Miles was untouchable and easily won the first two and took the championship. Jim McCrea picked up two, second-place Main finishes and won the third to claim second place, and Barnes settled for third.

• **1/12 Expert Mod.** Only three drivers competed, and Team Trinity/Team Losi driver Brian Kinwald was one of them, so I'm sure it won't surprise you to hear that he took the TQ honors and easily won the championship. The low turnout required only a single A-Main. Fernando Gordinho took second, and Jim Bishop claimed third.



Team Schumacher driver Dave Loftin kicks back during one of the slow periods.

• **1/10 Expert Mod.** Fernando Gordinho was on fire, and his Corally C10 was clearly the most dialed. He was the only driver to complete 16 laps, and he did so in all three of his qualifiers. Eric Vasutin, driving a Trinity Evolution 10 qualified second. In the first A-main, Gordinho's bad start resulted in a second-place finish, but he came back strongly in the second and third Mains to take the championship. Vasutin, who won the first



PHOTOS BY: GEORGE M. GONZALEZ

Main, finished second, and August MacBeth finished third overall.

• **Expert Stock Touring.** Driving a Trinity-powered Team Losi Street Weapon, Trevor Chambers was TQ after barely edging out Greg Degani, who was driving a Fantom/Pro-Match-powered Kawada SV-10. Team Losi manager Richard Trujillo rounded out third. Degani drove his SV-10 to victory after winning the first and third A-mains; Eric York skillfully drove his Maxtec-powered Roadrunner/Elite Express to claim third.



Yokomo factory pilot Brent Wallace was the Invitational-class champion at the Reedy Touring Car Race of Champions.

• **Expert Mod Touring.** Trevor Chambers came back to take TQ honors again, and Eric York claimed the spot next to the pole. This particular class was so hotly contested that nothing was decided until the third and final Main. In the end, Eric York emerged victorious after settling a tie with Tony Phalen, who drove an Orion/Maxtec-powered HPI RS4 Pro. Naturally, Phalen took second and Jason Corl, who had qualified ninth, claimed third.

• **Factory Touring.** During the second qualifying round, Team Trinity/Team Losi driver Brian Kinwald took TQ honors away from Team Yokomo driver Masami

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RACERnews



Team Schumacher's Jeff Whitman works in peace. This guy's ballistic!

Continued from page 128

Hirosaka, who was 1/100 second slower. Team Losi/GM driver Brian Dunbar claimed third—less than a 1 second slower than Hirosaka; talk about close racing! During the Mains, TQ Kinwald ran into nothing but trouble, and his bad luck took him down to fifth. After a bad start in the first Main, Hirosaka came back strongly to claim

victory for Yokomo. Team Associated/Yokomo driver Mark Pavidis took second after winning the first Main and taking second in the last two. Team Yokomo/GM driver Jon Orr settled for third.

FINAL THOUGHTS

This was my first time at the NORRCA Road Course Nats, and I've decided to compete at the next one. The track is huge, yet challenging, and the folks at Western R/C put on a good show. That the event is held in Las Vegas has nothing to do with my decision, but I might take in a show or two while I'm there. If you plan to travel to Nevada in September, plan to stop by and visit. Better yet, pack up your R/C gear and join in the fun!

*Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■

NORRCA ROAD COURSE NATIONALS-WINNERS

	FIN.	QUAL.	DRIVER	CHASSIS	MOTOR	BATTERIES	ESC	RADIO	CHARGER	TIRES(F/R)	PINION/SPUR	BODY
TOURING FACTORY MOD. A-MAIN	1	2	Masami Hirosaka	Yokomo	Reedy	Yokomo Plus-2	GM-V12	KO Esprit Vantage	Yokomo	Pro-Line	NA	Andy's Stratus
	2	4	Mark Pavidis	Yokomo	Reedy	Reedy Zapper	LRP	Airtronics	Novak	Shimizu	28/104	Andy's Stratus
	3	6	Jon Orr	Yokomo	GM 11x2	GM VIS	GM V12	KO EX1	GM Commander	Yokomo	27/104	Andy's Stratus
	4	7	Paul Wynn	Schumacher	Reedy	Reedy Zappers	LRP V6	Airtronics 3PS	Schumacher	Pro-Line S3	21/87	Protoform Alfa
	5	1	Brian Kinwald	Losi	Trinity	Trinity	Novak	Airtronics	Novak	Pro-Line	22/82	Andy's Stratus
	6	8	Barry Baker	Yokomo	Yokomo	Yokomo	LRP IPC V6	Airtronics M8	GM VIS	Pro-Line STS S3	21/78	Andy's Stratus
	7	9	Mike Mellin	Losi	Trinity 11x2	Trinity 2000	Novak Atom	Airtronics	Novak	Pro-Line	22/82	Andy's Stratus
	8	5	JR Mitch	Schumacher	Team Orion 10x3	Team Orion	LRP V6	Airtronics	Schumacher	Pro-Line S3	21/90	NA
	9	10	Jack Johnson	Losi	Trinity 10x2	Trinity	Novak	JR R-1	Novak	Losi Red Slick/Blue Slick	21/82	Andy's Stratus
	10	3	Brian Dunbar	Losi	GM	GM-VIS	GM V12	Airtronics	GM Commander	Pro-Line S3	22/82	Andy's Stratus
TOURING EXPERT MOD. A-MAIN	1	2	Erik York	Express	Maxtec	Maxtec	Novak	Airtronics M8	Tekin	Pro-Line/Yokomo	Kimbrough	Andy's Stratus
	2	5	Tony Phalen	HPI	Team Orion 12x1	Maxtec	Tekin	Airtronics	Tekin	Yokomo	23/87	Andy's Stratus
	3	9	Jason Corl	Losi	Trinity 211	Trinity	Novak	Airtronics M8	Novak	Losi	21/82	Andy's Stratus
	4	6	Chuck Stackler	Kawada	Birdman 11x1	Nuclear Power 2000	Novak	Airtronics M8	Yokomo	Yokomo Sprints	21/81	Andy's Stratus
	5	3	Richard Trujillo	Losi	GM 14x2	GM VIS	Novak	Airtronics	Novak	Pro-Line	26/82	Andy's Stratus
	6	7	Jeff Wittman	Schumacher	Maxtec	Pro-Match	LRP V6	Airtronics 3PS	Tekin	Pro-Line	20/87	Andy's Stratus
	7	4	Greg Degani	Kawada	Fantom 10x2	Pro-Match	LRP	Futaba	Tekin	Kawada TU-34	25/87	Protoform Primera
	8	1	Trevor Chambers	Losi	Team Orion	Team Orion	LRP IPC V6	Airtronics CS2P	Tekin	Pro-Line S3	21/78	Andy's Stratus
	9	8	Albert Guardado	Losi	Peak Perf.	Peak Power Flo	Novak	Airtronics	Novak	NA	NA	Andy's Stratus
	10	10	Ken Gerberding	Roadrunner	Team Orion	Team Orion	Novak	Airtronics 3PS	Tekin	NA	28/96	Andy's Stratus
TOURING EXPERT STOCK A-MAIN	1	2	Greg Degani	Kawada	Fantom	Pro-Match	LRP	Futaba	Tekin	Kawada TU34K	28/84	Protoform Primera
	2	4	Eric York	Express	Maxtec	Maxtec	Novak	Airtronics M8	Tekin	Pro-Line/Yokomo	Kimbrough	Andy's Stratus
	3	1	Trevor Chambers	Losi	Trinity	Team Orion	LRP IPC V6	Airtronics CS2P	Tekin	Yokomo Sprints	27/78	Andy's Stratus
	4	7	Steven Jackson	Losi	Fantom	Pro-Match	Tekin	Airtronics	Tekin	Yokomo	NA	NA
	5	8	Jim Deprez	Losi	Trinity M4	Nuclear Power	Novak	Airtronics 3PS	Tekin	Sprint (firm)	30/82	Andy's Stratus
	6	10	Kenny Johnson	Losi	Fantom	Pro-Match	Tekin	JR	Tekin	Losi	29/82	Andy's Stratus
	7	6	Patrick See	OFNA	ICHIBAN	GM-VIS	GM V-12	Airtronics M8	Victor	Yokomo	27/87	Andy's Stratus
	8	3	Richard Trujillo	Losi	Peak	Peak	Novak	Airtronics	Novak	Pro-Line	27/82	Andy's Stratus
	9	9	Albert Guardado	Losi	Peak Perf.	Peak Power Flo	Novak	Airtronics	Novak	NA	NA	Andy's Stratus
	10	5	Joey Orlanes	NA	NA	NA	NA	NA	NA	NA	NA	NA
1/10 Expert Mod. A-MAIN	1	1	Fernando Gordinho	Corally	Maxtec	Maxtec	LRP V6	Airtronics M8	Novak	Pro-Line Pink	24/120	Nissan P35
	2	2	Eric Vaustin	Trinity	Trinity	Trinity	Tekin	KO Propo	Comp. Elec.	TRC Pink/Purple	19/125	Andy's Mercedes
	3	8	August MacBeth	Associated	Xipp	Xipp	LRP	KO Propo	Turbo Thirty	Pro-Line	NA	Andy's Mercedes
	4	3	Jeff Wittman	Associated	Maxtec	Pro-Match	Tekin	Airtronics CS3PS	Tekin	Trinity/Pro-Line	22/120	Protoform P-35
	5	5	Douglas King	Trinity	Birdman 11x4	CRC/Birdman	Novak	KO Propo Mars	Victor Quad IQ	TRC Pink	21/116	Andy's Mercedes
	6	9	Jim Bishop	Trinity	Maxtec	Maxtec	Novak	Airtronics	Novak	TRC	NA	Andy's Mercedes
	7	6	Dominic Favorito	Associated	Racetech	Racetech	Tekin	Airtronics	Tekin	Jaco Purple/Pink	22/120	Andy's Mercedes
	8	4	Herman Ip	Associated	11x2	Perfect Match	Novak	Airtronics	Tekin	Jaco Pink	22/120	Andy's Mercedes
1/12 Expert Stock A-MAIN	1	1	Dan Miles	Associated	Trinity	ADR	Novak	KO Propo	Comp. Elec.	Jaco	31/95	Protoform
	2	3	Jim McCrea	Associated	Silver Can	Reedy Zapper's	GM V-12	Airtronics 3PJ	Novak	Jaco Purple/Pink	23/96	Protoform P-35
	3	2	Charlie Barnes	Associated	Banzai	Xipp	Tekin	Hitec Lynx	Victor Quad IQ	Jaco Purple/Pink	20/75	Andy's Mercedes
	4	5	Dennis Racine	Associated	Rick's Pick	GM	Novak	KO Propo	Tekin	NA	21/75	NA
	5	4	Maurice Contoleon	Associated	Fantom	P.E. #1	Tekin	Airtronics	Tekin	Jaco/Associated	18/75	Dahms Lola
1/12 Expert Mod. A-MAIN	1	1	Brian Kinwald	Trinity	Trinity	Trinity	Novak	Airtronics	Novak	TRC	26/105	Andy's Mercedes
	2	2	Fernando Gordinho	Corally	Reedy 16 Quad	Maxtec 2000	LRP V6	Airtronics M8	Novak	Pro-Line Pink	24/95	Andy's Mercedes
	3	3	Jim Bishop	Trinity	Maxtec	Maxtec	Novak	Airtronics	Novak	TRC	NA	Andy's Mercedes

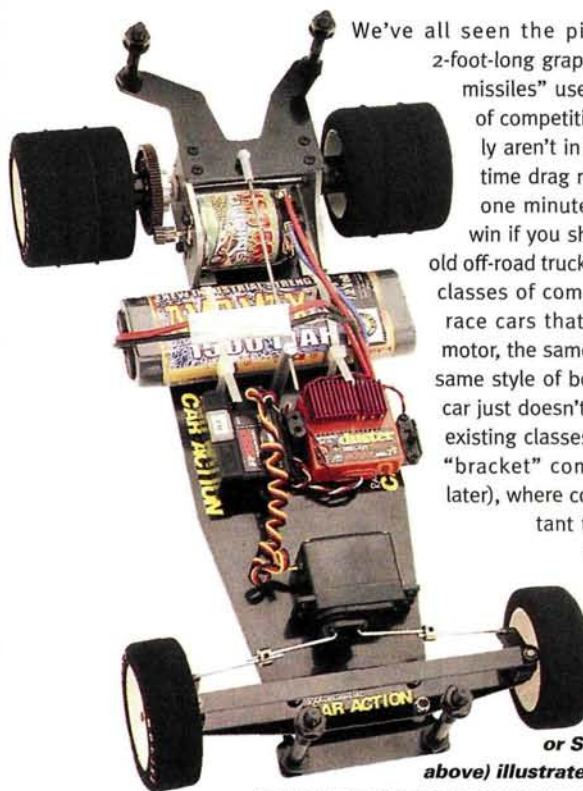
Get Started in R/C DRAG RACING



All R/C car guys are racers at heart. Even if you've never been to a track, never paid an entry fee, never sampled a trackside hot dog (you're not missing much on that one ...), I'm sure you and your R/C buddies bang doors to see who's fastest around the parking lot whenever you get together. This is the sort of head-to-head competition that R/C drag racing is all about, and it's just about the easiest type of organized racing to get into—or to organize yourself. Here's an overview of what you'll need to know to play the drag-racing game.



WHICH KIND OF CAR DO I NEED?



We've all seen the pictures of the 20-cell, 2-foot-long graphite and titanium "cruise missiles" used in the top-fuel classes of competition. Yikes! These generally aren't in the budget of most first-time drag racers. But don't think for one minute that you can't possibly win if you show up with your favorite old off-road truck. You see, there are many classes of competition, and you'll only race cars that have the same type of motor, the same number of cells and the same style of body as yours. And if your car just doesn't fit neatly into any of the existing classes, you can always race in "bracket" competition (more on this later), where consistency is more important than sheer speed. So no matter what you take to the track, you can race ... and possibly win!

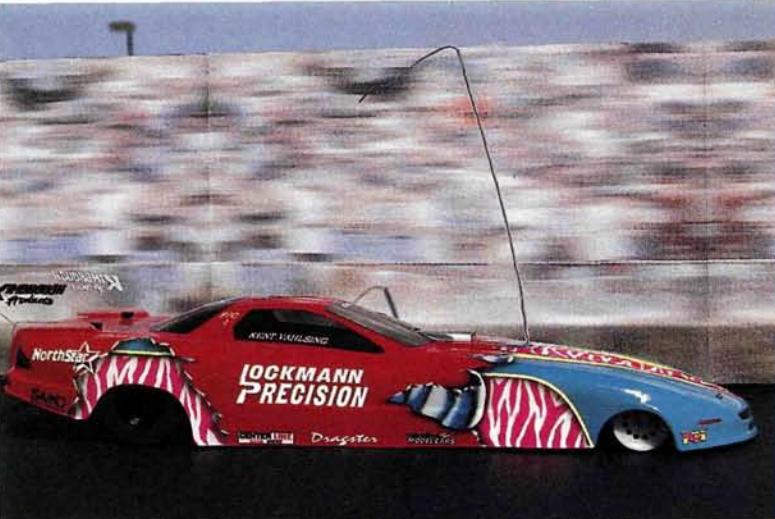
This Bolink Pro stock chassis (available with the Camaro or S-10 body, shown

above) illustrates just how simple and inexpensive drag car can be. Even with the inexpensive gear shown here, this car can reach 40mph!

by Mike Ogle

There's more
to it than

**"Get there
FIRST!"**



THE CLASSES

Here is a rundown of the classes run regularly at an International Electric Drag Racing Association (IEDA) drag meet. Other clubs or tracks may run other categories, such as Pro Truck or nostalgia-body "Super Gas," so be sure to check your local track for a complete roster.

Bracket. It's "run-whatcha-brung," no tech inspection needed. Just dial in your ET (no, I'm not suggesting you "phone home"); ET stands for elapsed time. See the section on bracket racing.

Competition eliminator. Same as bracket racing, but everyone's "index ET" is set at 2.75 seconds.

Super stock. Handout stock motors, American sedan bodies (NASCAR bodies are allowed), 6 cells and a minimum weight of 42 ounces; a great transitional class for oval racers.

Econo dragster. Dragster chassis/bodies, 7 cells, mod motors, 36-ounce weight limit; the least expensive dragster class to compete in.

Pro stock. American sedan bodies with snorkel-style hood scoops, 8 cells, mod motors, 36-ounce weight limit.

Alcohol funny car. Funny-car bodies, 10 cells, mod motors, 36-ounce weight limit. The term "alcohol" is borrowed from the full-size NHRA racing; these are all electric classes.

Alcohol dragster. Dragster bodies and chassis, 10 cells, mod motors, and a 36-ounce weight limit; a very fast, very popular class.

Top-fuel funny car. Funny-car bodies, 16 cells maximum, 36-ounce weight limit. That much power in a short 14-inch wheelbase is a real handful; take spare parts. Once again, this is an electric class, despite the name.

Top-fuel dragster. Dragster chassis/body, 20 cells maximum, 36-ounce weight limit, modified motors; nerves of steel required.

About bodies. Some classes, such as funny cars and rails, require bodies that may not be on the wall of your local hobby shop. Don't worry; they're easy to get. Protoform*, Hot Bodies*, Dahm's*, Parma*, Bolink* and McCallister* offer ready-to-paint shells just for the straight-line crowd.

There are more technically complete rules for each class than what we've printed here. For an IEDA rulebook, contact IEDA, 115 Kerr St., Clinton, NC 28328; (910) 592-9489. Tell them you read about drag racing in *Radio Control Car Action*!

No, this isn't a full-scale dragger; it's IEDA frequent flyer Kent Vahlsing's top-fuel rail and top-fuel funny car (above).



BRACKET RACING ... THE GREAT EQUALIZER

If you're new to drag racing, you'll probably start out in a "bracket" class. This is one of the most fun-filled and challenging categories because only quick reaction times and consistent ETs will get you to the winners' circle—not the speed of your car. In fact, the slower cars often have the advantage because they can more easily repeat their performances run after run. Here's how it works:

First, you make a few runs and determine your car's ET average, let's say it is 3.60 seconds. Next, you go to the race director and tell him you want to "dial in" at 3.58 seconds. Why 3.58 seconds? Because you want a little "cushion" between what your car consistently runs and your dial-in time. If you run any faster than this "predicted" ET, you'll "break out" and lose the race. Every competitor will base his dial-in time on his car's average ET. All this information is fed into the computer that runs the starting lights. When you line up against an opponent, you both get the starting light's yellow—yellow—yellow—green sequence, but the illumination of the lights is "staggered" to give the slower car (the one with the slower dial-in time) exactly the right head start to produce a dead-heat, or tied, finish.

So, if the Christmas tree gives the slower guy a head start to equalize the different dial-in times, how do you win? You can beat your opponent to the finish line by having a better reaction time ("cutting a light"); if you react to the green light in 0.520 second and he reacts to his green light in 0.540 second, you just gave yourself a 0.020-second advantage off the starting line, even if you both go on to run your exact dial-in times. Remember, your ET does not include your reaction time, so if you run a 3.58 and have a 0.520 reaction time, you reached the finish line in 4.10 seconds. If your opponent dialed in at 3 seconds flat after the timing lights gave him a 0.58-second handicap off the line, and you add in his longer 0.540 reaction time, he actually got to the finish line in 4.12 seconds, $\frac{2}{100}$ second after you. You win!

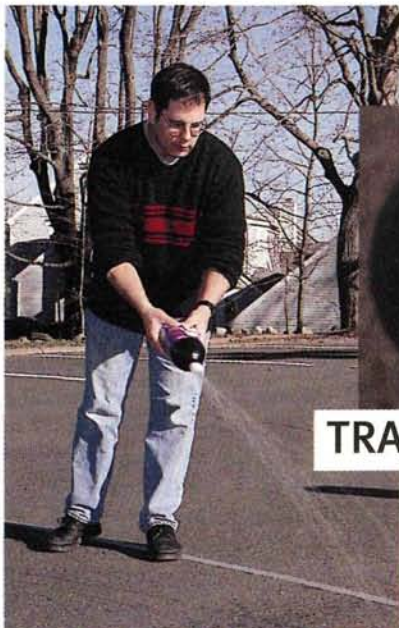
Of course, sometimes your car just isn't as consistent as you need it to be in bracket racing, and you may run a little more slowly than your stated dial-in time, and you may be beaten to the finish line because your handicap is based on what you "guessed" your ET would be.

At the other extreme, you could run faster than your dial-in time and lose by "breaking out." This is why it's not to your advantage to dial in at an ET that you know you can beat just to try to get a bigger head start. Give a dial-in time that won't give up too much of a handicap to a slower opponent, but not so much that you can easily run faster and lose by breaking out.

Bracket-class races can be very entertaining to watch, as the most lopsided pairings produce the biggest crowd reactions. I remember watching a 5-second-plus dialed-in VW bus with a stock motor slowly motor down the track while his opponent, a sub-2-second dragster, sat waiting for what seemed like an eternity on the starting line, with its driver just about pulling out his hair in anticipation of his green light! By the time he got the "go," the little bus was about 8 feet from the finish line, and the dragster shot off the line, desperately trying to reel him in. The finish looked like a dead heat to the spectators, but the timers told a different story. Let's just say that in bracket racing, big horsepower doesn't always prevail!

Do-it-yourself drag strip

Sure, dragging can get complex with dial-in times and break-outs and such, but in its purest form, drag racing's beauty is its simplicity: two cars leave the starting line; one gets to the finish line first. For that sort of mano-a-mano competition, it's easy to build your own drag-racing "facility." Here's how:



TRACTION

Foam tires are a must for any direct-drive car; 6-cell gearbox cars can get away with rubber, but run foams if you have 'em: softies in back, hard donuts up front. For super grip, spray grape soda (or another sugar-bomb drink) onto the starting and shut-down areas. When the sweet stuff dries, these areas will be stickier than the floor of a movie theater after a "Rugrats" matinee.



TRACK

An IEDA-legal, $\frac{1}{10}$ quartermile is 132 feet long and has two 10-foot lanes. This can easily be drawn out in a parking lot with chalk, or layed out with tape. Use a yardstick to draw nice, straight start and finish lines, or use a carpenter's chalk line. Be sure there's at least 30 feet of space at the end of the run for a "shut-down" area; if you plan to run 10-cell cars (or something even scarier), leave yourself an even bigger cushion.



TIMING

The stopwatch function of any digital watch is more than adequate for pick-up drag races. Have the starter stand at the finish line with a flashlight.

When the racers are ready, the starter switches on the flashlight and hits the stopwatch; when the winner crosses the line, the stopwatch is stopped. That's the time to beat!

A good stopwatch is handy for all types of R/C competition, especially drag racing. Bolink distributes high-quality units from Robic.



QUICK WAYS TO WIN

- Have a faster car.
- Have a quicker reaction time.
- Any way you can. Get to the finish line first.

QUICK WAYS TO LOSE

- Red-light.
- Have a slower car.
- Have a lousy reaction time.
- Have a faster car, but a lousy reaction time.
- Cross into your opponent's lane.
- Smack the timing lights.
- Solder your batteries (or motor) in backward, and launch your car in reverse off the starting line. (It has been done!)



DRAG-RACING WEBSITES

RaceAmerica (www.raceamerica.com) has links to more than 20 R/C drag-racing clubs and to several manufacturers and related websites. Also, check out the Arrow Hobbies website at www.arrowhobbies.com, Northstar R/C at nrthstrrc@aol.com and Grand Motorsports at www.grandmotorsports.com.

With all the information at these sites and the ones they're linked to, you'll be a drag-racing expert in no time.

Drag Racer's Glossary

R/C drag racers have their own language, some of it borrowed from full-size drag racing, some of it unique to this particularly weird (in the best way!) corner of the R/C world.

Back up: to produce an elapsed time within 10 percent of a previous run to establish a record.

Blow-over: to wheel-stand down the track, usually by air getting under the car at speed.

Break out: to lose by running faster than your dial-in time (a bracket-racing term).

Bulb: to "red-light," or jump the start.

Bye run: an elimination round without an opponent because there's an odd number of competitors.

Carry 'em: to ride out a starting-line wheel stand.

Cobalts and neos: rare-earth magnets used in some drag motors.

Cut a light: to perform with a close to perfect reaction time, gambling on a red light.

Deep stage: to stage the car so that it almost breaks the starting beam.

Dial in: in bracket racing, your "anticipated" elapsed time; used to determine your handicap.

ET (elapsed time): the time it takes for your car to travel the 132 feet of a 1/10-scale drag strip.

Gooped: tires fully prepared with traction compound.

Haze 'em: spin the tires off the line, sometimes producing a "web" of traction compound.



Holeshot: to beat your opponent off the starting line with a better reaction time.

Index class: a bracket class, such as competition eliminator, in which everyone has the same dial-in time, usually 2.75 seconds; go any faster, and you break out.

Ladders: the elimination pairings; determined by qualifying positions.

Pizza cutters: skinny front dragster wheels that resemble ... well, you know.

In the lights: at the finish-line beams.

Rail: a long-chassis dragster.

Ramp it: to hit the protective covers on the finish-line photocells. This usually induces flight; the launch doesn't hurt the car, but, oh, that landing...!

Staged: set on the line, ready to go.

Tree: the starting lights, also known as the "Christmas tree" because of its shape.

*Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■

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Reads down to .001 volts—(Example 1.165)

Milliwatt hours standard—shows total power of cell combining amps, time, and volts.

30 amps maximum standard

Low cost—\$223/cell vs old 30 amp Turbomatcher at \$332/cell.

Turboflex charging selectable—reduces cell-venting by breaking up gas bubbles, lowers impedance.

Peak detect voltage settable—.01 to .09 volts

Stores up to 3 different setups—automatically uses last setup used upon power up.

Relative Internal Resistance is standard

Milliamp hours standard—shows standard rating of cell (Example...2000).



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by Kevin Hetmanski



Attracting racers from as far away as Canada and England, the Tenth Annual National Radio Controlled Truck Pulling Association (NR/CTPA) World Championships was a well-attended and exciting event. The Holiday Inn Resort and Convention Center in Montpelier, OH, provided an awesome racing environment for the 280 registered entrants. As you can imagine, the competition was very fierce in every class, so the title of world champion was not easy to earn.

NR/CTPA Worlds



GET IN ON THE ACTION

Have you ever sat in the grandstand at a Pace Motorsports monster truck event and wondered what it would be like to run your R/C monster truck on the same track as the full-size monsters? Well, guess what? you might just have a chance to do exactly that! Darren Grillo from Pace Motorsports is looking for people who would like to help out at one of Pace's events by running their

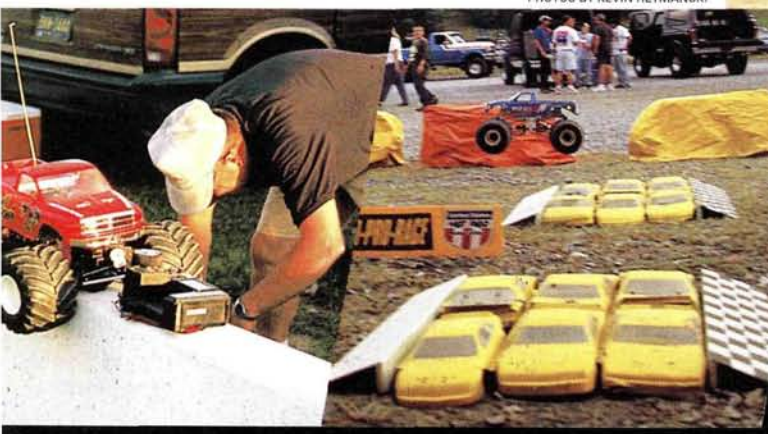
R/C monsters in front of thousands of spectators.

If you think that it would be far too nerve-wracking and that you couldn't possibly run in front of so many people, then trust me when I say it's a total blast. I did it myself. I must admit that, at first, it felt a little weird to stand in front of all those people and play with my monster truck. But when I heard all the "Oohs" and "Ahs," I got the



I decided to join in the fun this time; I'll give you the low-down on what it was like to compete at this cool event.

PHOTOS BY KEVIN HETMANSKI



biggest rush knowing that all of those people thought that what I was doing was really cool.

Participating in one of these events also allows you to get a little closer to the real monster trucks and, if you are lucky, you might even get to hang out with the drivers. If you'd like to participate, contact Darren Grillo from Pace Motorsports at (630) 820-5379.



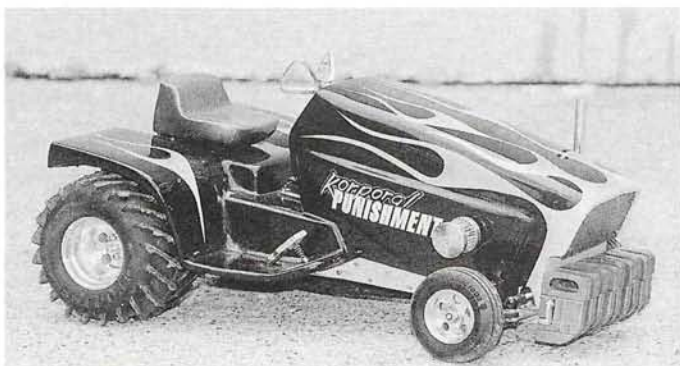
Left: Hector Aponte's new Mongoose II. Center: a fine example of a well-detailed pulling truck. Right: a lot of monsters were modeled after full-size trucks.

MONSTER TRUCKING

A lot of really exciting things happened in the monster truck classes this year. Darren Grillo from Pace Motorsports and Parma joined forces to design and build a very realistic course. The NR/CTPA is trying to add scale realism to the sport, and the track layout went right along with the scale theme by mimicking a full-scale track used at a Pace Motorsports event.



You are looking at one thousand dollars' worth of paint; it actually changes color as the light changes. If my truck had such an expensive paint job, it would probably never leave my house.



Check out this sweet pulling tractor. It competed in the new garden tractor class and is completely scratch-built. The body is made of balsa wood, and the wheels were machined from solid pieces of aluminum stock. Its many details include realistic weights hanging from the front end, gas and brake pedals, steering wheel, exhaust pipe, gauges and air filter.



Two lanes were set up, and each featured crushed Parma Lexan bodies with a simulated dirt jump at the start and a landing pad at the end. The crushed bodies in each lane were all painted in the same color, and each lane had its own color. Banners and starting- and finish-line poles also added that extra touch of realism.

Two monster trucks ran side by side just like the real things, instead of racing alone against the clock as they did at past events. The racers' individual times still determined the finishing order, but they pushed their trucks harder to beat their opponent, and this made things more fun for everyone.

When the event was over, a bunch of monster truck racers set up a side-by-side course with several lanes, and the drivers drag-raced to the finish line. The racing was so close that a video-camera system had to be brought in to replay the finishes. Of course, the event was an instant hit, so look out for monster truck drag racing at future NR/CTPA events.

You scratch-builders might be pleased to know that the

MONSTER TRUCK

4WD Box Stock

Pos.	Driver	Time (seconds)
1	Dan Wyatt	38:26
2	Tim Powers	40:18
3	Dan Wyatt	44:30

4WD Super Stock Monster Truck

1	Tim Powers	33:00
2	Dan Wyatt	34:70
3	Johnny Heath	38:32

4WD Modified Monster Truck

1	Brandon Bischoff	27:00
2	Billy Herzog	27:22
3	Tim Powers	27:28

2WD Stock Tuff Truck

1	Dan Wyatt	41:11
2	Kyle Rausch	42:21
3	Rob Choinski	43:38

2WD Super Tuff Truck

1	Dan Wyatt	NA
2	Charlie Miller	NA
3	Danny Marcum	NA

2WD Modified Tuff Truck

1	Dan Wyatt	NA
2	Ron Walls	NA
3	Charlie Miller	NA

4WD Experimental Tuff Truck

1	Bill Herzog	NA
2	Ron Walls	NA
3	Pete Philips	NA

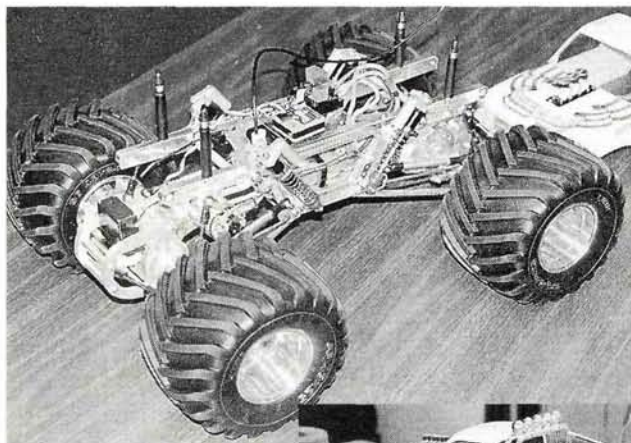
NR/CPTA is considering the addition of a tube-frame monster-truck class, so if you're interested, you'd better start building that monster in a hurry.

TRUCK PULLING

The truck-pulling competitions once again had the lion's share of entrants. With so many classes competing, three carpet tracks and one indoor dirt track had to be set up to keep things running smoothly.

The garden tractor class (a class for scaled-down, sit-down-style lawnmowers) was experimental. These little pullers weigh about 4 pounds and can pull up to 20 pounds of dead weight.

Also new on the agenda was the Insane
Continued on page 163.



Bennett Equipment had its new chassis kit on display for the Kyosho USA-1 (right). The upper suspension is locked to make the gear cases a solid one-piece unit. This allows you to use the already-proven Clod-A-Leaver chassis and suspension. JPS, the maker of those fine machined-aluminum gear cases, displayed a new monster truck chassis and suspension kit (above). The kit features cantilevered shocks, four-link suspension and a chassis that is machined from a solid piece of aluminum.



TRUCKERS SPEAK

I took a break from the mayhem and spoke with some of the guys who know monsters best: Darren Grillo, event operations manager for Pace Motorsports and designer of this year's track; Joe Kirkwood, six-time world champion R/C monster truck driver; and Joe Kilian, 1997 winner of the 2WD Stock and Pro Stock pull-offs and a 10-year veteran R/C truck driver.

Darren Grillo

Age: 32

Occupation: event operations manager for Pace Motorsports
Hobbies: R/C monster trucks



R/C Car Action: How did you get involved in R/C monster truck racing?

Darren Grillo: I've always had an interest in R/C racing. In fact, I raced some years ago. When I found out that monster trucks were the rage, I tried it. I figured since my occupation revolves around monster trucks, my hobbies should revolve around my occupation.

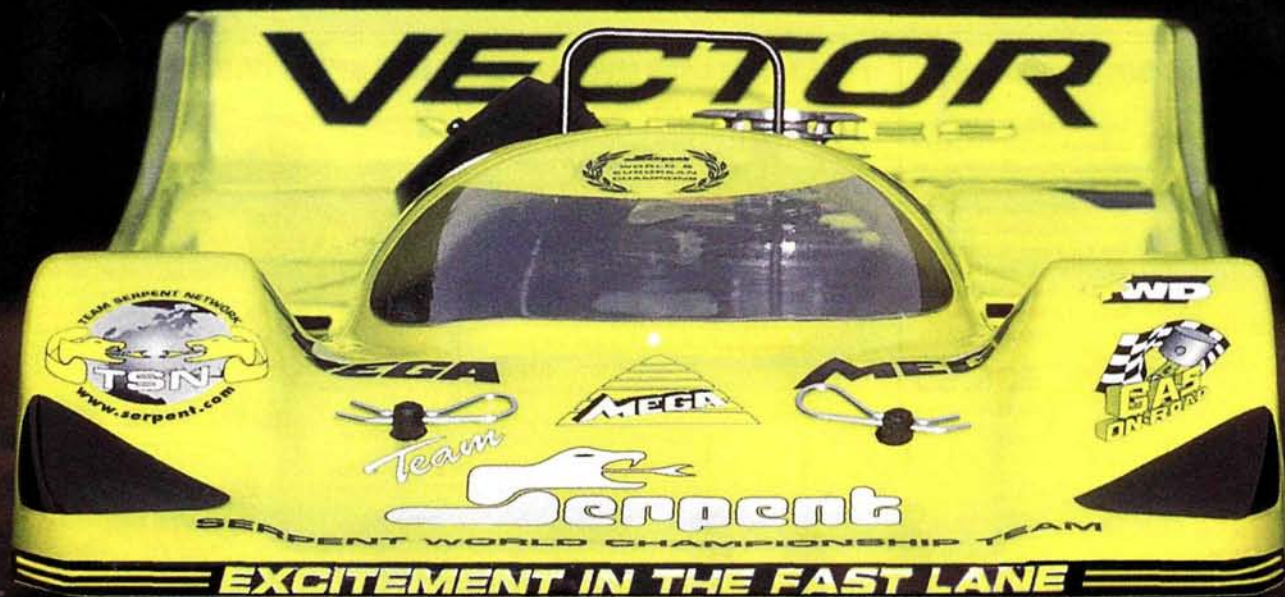
RCCA: How did you get the idea to have R/C monster truck shows during the real monster truck events?

DG: Another event director put on an R/C demo at one of the shows. The event went well, and when I found out how easy it was to find people who own and race monster trucks, I decided to make a few phone calls. The next thing I knew, I was knee deep in R/C monster-truck drivers who wanted to perform in our shows. So I guess you could say I really just stumbled onto the idea.

RCCA: If people are invited to one of your shows, what do they have to look forward to?

DG: They will get the chance to feel the rush of having a stadium full of people just going nuts

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while they perform on the event floor; and to top it off, they'll meet the other participants, usually including real monster-truck drivers and members of the Pace staff. What will you have to look forward to? A real good time, that's what.

RCCA: Do any of the full-size monster truck drivers have R/C monster trucks?

DG: I've noticed a lot of them do own Bennett and ESP Clod Busters. For them, it seems to be their toy of choice during the off time. I would say that a good percentage of real monster truck drivers and owners own R/C monster trucks.

RCCA: What is your interest in the NR/CTPA?

DG: I think that it has a bright future. With a little bit of guidance, it will have the opportunity to blossom and will become much larger than it is now. With some minor changes in its current format, the NR/CTPA could make its racing more interesting for the competitors and the spectators.

RCCA: What is your vision for the future of the NR/CTPA?

DG: I would like to see the NR/CTPA put on a national championship at one of our events.

Joe Kirkwood

Age: 41

Occupation:

contract

painter

Hobbies:

building R/C

trucks and

fishing



RCCA: When did you get involved with R/C monster truck racing?

Joe Kirkwood: Right at the beginning. I always raced trucks—the bigger the truck, the better—and I scratch-built a lot of stuff before the NR/CTPA even started. The first year of the NR/CTPA, I became a member and started racing.

RCCA: What part did you play in the development of the Bennett Equipment Clod-A-Leaver chassis and suspension?

JK: I built the first three trucks at home with a hacksaw and Dremel. Once things started rolling, I worked out a deal with PDI/Zeta. They were the first to manufacture the parts. Once PDI/Zeta decided to get out of the business, Bennett Equipment took over.

RCCA: You're a six-time world champion R/C monster truck driver and are considered by many to be an authority on monster truck racing. What advice can you pass along to someone who is just getting started in monster truck racing?

JK: That's a tough question. Set up your suspension up as soft as you can. That works well on most tracks. A lot of guys, including me, over-power their trucks. I slowed down one of my trucks and found that I was able to shave a full second off my best time.

RCCA: So, basically, slow is fast?

JK: Right; more power is definitely not better.

Joe Kilian

Age: 48

Hobbies: col-

lecting trains

Occupation:

works for a

county water

authority



RCCA: When did you start in R/C truck pulling?

Joe Kilian: About 10 years ago. I couldn't afford a real pulling truck, so I got involved in scale pulling.

RCCA: What do you see in the future of R/C truck pulling and the NR/CTPA?

JK: The trucks will become more realistic and will be more powerful. Truck pulling will also become more widely accepted.

RCCA: What advice can you pass along to those who would like to get involved?

JK: The best entry-level vehicle is the Bolink Digger. Just come to one of our events and talk to me or one of the other members of the NR/CTPA, and we will be glad to help you out.

PURE EXSITEMENT

www.serpent.com



Our totally new Team Serpent Network website is a lot like our Vector Spec 99 – fast, powerful, and loaded. Set-up a [customized home page](#) that presents the info you want (even the [language](#) you want it in, comprende?). See which friends are on-line and jump into a [chat](#) to discuss important topics like fuel consumption, tires and which race has the best track food. [Ask the Pros](#) technical questions, and the [racer forums](#) let everyone rant and rave.

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CARPET PULL-OFFS

Digger—50 pounds

1	Bud Woodruff	10 ft., 4 in.
2	Kenny Potts	9 ft., 6.5 in.
3	Johnny Heath	6 ft., 10.5 in.

Dual Motor Box Stock—110 pounds

1	Doug Corning	28 ft., 3 in.
2	John Jacobus	26 ft., 3.25 in.
3	Dan Wyatt	22 ft., 8 in.

2WD Stock—80 pounds

1	Joe Kilian	Full pull
2	Kyle Rausch	28 ft., 10 in.
3	Tina Kilian	26 ft., 4.25 in.

Mini Rod—80 pounds

1	Jack Koogler	Full pull
2	Donnie Franklin	27 ft., 9.37 in.
3	Tim Dixon	24 ft., 1.75 in.

18 Wheeler—150 pounds

1	Robert Ridgeway	18 ft., 6 in.
2	Jack Koogler	18 ft., 0.5 in.
3	Michael Gross	17 ft., 11 in.

Pro Stock Tractor Smoker—100 pounds

1	Jack Koogler	26 ft., 6.5 in.
2	Jack Koogler	25 ft., 6.25 in.
3	Johnny Heath	24 ft., 7.37 in.

Bar Tire Sportsman—125 pounds

1	Kenny Rice	Full pull
2	Bud Woodruff	28 ft., 6 in.
3	Bud Woodruff	27 ft., 9.75 in.

Dual Motor Stock—150 pounds

1	George Rodgers	29 ft., 10.5 in.
2	Carol Queen	27 ft., 11.75 in.
3	Matt Wilkins	23 ft., 5.25 in.

2WD Sportsman—200 pounds

1	Jack Heath	20 ft., 10.5 in.
2	Dave Wright	20 ft., 9.5 in.
3	Tom Rausch	20 ft., 5.25 in.

2WD Open I—300 pounds

1	Jack Heath	20 ft., 3.25 in.
2	Johnny Heath	19 ft., 9.5 in.
3	Jack Koogler	19 ft., 4.25 in.

4WD Open I—300 pounds

1	Jack Heath	19 ft., 0.5 in.
2	Johnny Heath	19 ft., 0.75 in.
3	Jack Koogler	18 ft., 3.75 in.

Dual Motor Modified—375 pounds

1	Brad Pitt	25 ft., 8 in.
2	Jack Koogler	25 ft., 2.5 in.
3	Trudy Karpinski	20 ft., 5 in.

2WD Unlimited—580 pounds

1	Dave Wright	25 ft.
2	Jack Koogler	24 ft., 3.5 in.
3	Jack Koogler	28 ft., 11.25 in.

Continued from page 158.

Pulling class, which is basically an "anything goes; the sky's the limit" type of thing. One of the tractors in this was powered by two, cobalt-magnet motors and 72 cells. A tractor with a huge gas engine attached to it represented the other side of the insanity spectrum!

The outside dirt track turned into a big mud pit because of rain and was not used. This meant that the gas tractors ran indoors along with the electric ones. The sound of the nitro engines echoing inside

BASIC RULES

Truck pulling takes place on carpet or on dirt. Each class starts with a certain weight that must be pulled. Once the sled starts moving, a timer is started. If the sled is pulled off the track, the length of the pull is measured to that point. If the vehicle stops pulling for any reason, then the length of the pull is taken from the point at which it stopped. If the sled is moving slowly and does not reach the full pull mark before the allowed time expires, the measurement is taken at the point at which the vehicle was when the time elapsed.

Of course, if your truck is strong enough to make a full pull to the end of the course within the time limit, then you advance to the next round where more weight is added to the sled. The truck that pulls the most weight the farthest distance is the winner.

The monster truck racing classes are also timed events. The trucks run over an obstacle course that features jumps, turns and crushed R/C cars. Cones are set up around the course, and if one of these cones is knocked over by a vehicle, a second is added to its driver's time. In addition, a truck must touch the jumps and the crushed cars with at least two of its tires. If you miss these obstacles altogether, more time is added to your total time. The truck with the fastest time is the winner. A rule book is available for both truck pulling and monster-truck racing through the NR/CTPA; call (716) 627-4321, or visit the website at www.webt.com/RCTruckpul.



Don Hubert gets his beautiful tractor ready for a run down the dirt track. His completely scratch-built balsa 1923, 1-ton, C-cab puller features USA-1 rear tires, a unique rack-and-pinion steering setup, AstroFlight® ESC and Pull Master III motor, custom paint and custom-detailed motors. Don covered the chassis with MonoKote® covering film.



Above: a competitor sets up for another run at a full pull on the carpet, which looks a lot longer when your truck is pulling a heavy sled. Right: yes, that's a full-size truck being pulled across the parking lot.

the hotel made things even more exciting.

During a break in the action, some of the racers took a long strip of carpet to the parking lot and set up a temporary outdoor pulling track. There was one slight twist in this competition, however: instead of hooking up the tractors to a pulling sled, they were hooked up to a full-scale truck, which they pulled down the track.

Things just keep getting better at the NR/CTPA. There were a lot of interesting changes this time, and the NR/CTPA

DIRT PULL-OFFS

Digger—9.25 pounds

Pos.	Driver	Distance
1	Larry Jaques	Full pull
2	Delbert Humes	28 ft., 10.25 in.
3	Jim Guinta	27 ft., 2.5 in.

Garden Tractor—20 pounds

1	Mike Dozier	28 ft., 2.37 in.
2	Kyle Rausch	27 ft., 8.75 in.
3	Helen Singleton	27 ft., 8.5 in.

Pro Stock Tractor—35 pounds

1	Brian Cascagnette	28 ft., 8.5 in.
2	Joe Nieman	27 ft., 1.25 in.
3	Mark Burgdorfer	26 ft., 11.75 in.

Mini Rod—40 pounds

1	Larry Jaques	26 ft., 7.25 in.
2	Larry Bennett	26 ft., 4.87 in.
3	Larry Jaques	26 ft., 2.5 in.

2WD Super Stock—37.5 pounds

1	Jim Guinta	28 ft., 8.5 in.
2	Gaylord Saulsberry	24 ft., 10 in.
3	Joe Kilian	23 ft., 4 in.

18 Wheeler—32.5 pounds

1	Tina Kilian	27 ft., 8 in.
2	Bud Woodruff	27 ft., 3.5 in.
3	Mike Dozier	26 ft., 7 in.

Sportsman—55 pounds

1	Mark Burgdorfer	27 ft., 8 in.
2	Chris Sullivan	28 ft., 9.37 in.
3	Tina Kilian	26 ft., 7 in.



grows every year. I had a lot of fun and met a lot of nice people. The NR/CTPA thanks all of the sponsors for their help. I know that there are a lot of R/C truck fans out there. Check out the NR/CTPA website (www.webt.com/RCTruckPul) if you are looking for a way to compete with your monster.

*Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■

Need to know what's new? What works well and what doesn't? This section is devoted to objective reviews of all R/C car accessory items. From gears and wrenches to motor brushes and shock springs; if you can use it with your R/C vehicle, you'll find it critiqued on these pages.



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Pro-Max
Einstein AC/DC
Peak Charger



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Xipp
Nitro Bearing Tool



172
Exergen
D-501 Infrared
Temp Sensor

PRO-MAX

Einstein AC/DC Peak Charger

The intelligent way to charge

The Pro-Max* Einstein AC/DC-powered peak charger is designed to charge 6- to 7-cell battery packs of 1200 to 2000mAh. Because of its AC/DC operation, the unit can be plugged into an ordinary 110V AC plug, or it can be rigged to a 12V power supply such as a car battery. The unit features two charge rates: 2 amps—designed to prolong battery life; and 4 amps—designed to quick-charge a battery pack in approximately 25 to 30 minutes.

The Einstein is easy to operate. Just connect your battery pack to the supplied Tamiya-style battery connector, and an LED will flash to signify that the Einstein is ready to charge the pack. Next, select the charge rate and the charge mode; an LED will flash to show the charge mode selected (2 or 4 amps). Then, press the start/stop button once, and the LED will be fully illuminated to indicate that the charge process has started. When the battery pack has been fully charged, the charger will switch off, the LED will start to flash again, and the charger will switch to a 300mAh trickle-charge mode.

Bench testing. To test the Einstein, I charged five completely dumped 2000mAh stick packs back to back without allowing the unit to cool down between charges and without the benefit of a cooling fan. Chargers I've tested in the past would be extremely hot after the second battery pack, and the Einstein was no exception; it heated up in grand style and even emitted a funny odor while charging the third battery pack.

Other chargers might have blown a fuse on taking such abuse, but the Einstein is not equipped with one, so I let the unit cool down for 15 minutes before I charged the last two packs (I didn't want to risk a nuclear meltdown). Besides, the instructions clearly tell you to let the unit cool down between charges, and that's good advice. After a brief cool-down, I charged the remaining two battery packs without any heating problems or

funny smells. In the end, I had five charged battery packs that were warm to the touch after the peak charge had been completed. It took exactly 32 minutes to charge each pack at the 4A charge rate.

I also charged a half-dumped 1500mAh battery pack to see whether the unit would be able to detect how much voltage remained in the pack and would know it should turn off the charge cycle sooner. I wasn't surprised when the Einstein turned itself off approximately 15 minutes into the charge; the battery pack was only slightly warm to the touch.

The Einstein AC/DC peak charger is easy to operate and sells for around the same price as a comparable 15-minute timed charger. We're all ready for an affordable AC/DC peak charger that will allow first-time racers to charge their battery packs safely and effectively. If you're in the market for an inexpensive AC/DC peak charger, take a look at the new Einstein; it just might be the most intelligent choice for you.

The Einstein also has a couple of other safety features that are worth mentioning. The unit has built-in software that actually diagnoses the battery pack before it starts the charge mode. If the pack has a short circuit or a bad cell or has been wired incorrectly (reverse polarity), the Einstein will notify the user by flashing both charge-mode LEDs simultaneously. The Einstein also has a built-in timer that shuts off the charge cycle after 45 minutes in the 4A mode and 90 minutes in the 2A mode: this prevents overcharging and potential accidents.

—George M. Gonzalez

LIKES

- Low retail price.
- AC/DC operation.
- Compact size.
- Easy operation.
- Peak-detection circuitry.
- Reverse-polarity-protection software and built-in timer.

DISLIKES

- No user-replaceable fuse.
- Low-tech look.



The Einstein can charge a completely dumped sport pack in about 30 minutes. I tried every trick in the book to fool the Einstein, but it gave me a perfectly charged pack each and every time.



XIPP

Nitro Bearing Tool

A must-have tool for .12 nitro-engine maintenance

In many ways, it's easier to maintain nitro engines than electric motors. Other than some very simple maintenance, there's little you need to do to make a nitro engine last longer; and when it's time for repair, nitro engines are relatively simple to fix. Need a new piston and sleeve? No problem; the job can be finished in about five min-



The Xipp Nitro Bearing Tool set includes everything needed for removal and replacement of crankshaft bearings in most popular .12 engines.



Removing the engine bearings is as simple as installing the tool and rotating the threaded portion.



Tightening a tapered Allen screw in the end of the bearing removal tool, and the fingers of the collet grab the inside race of the bearing for easy removal.



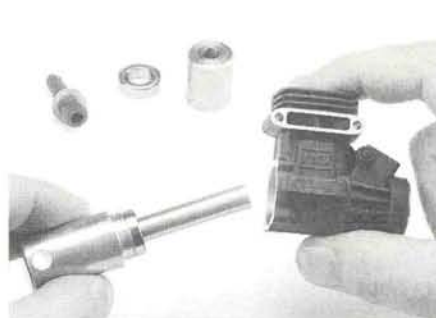
Simply flip the removal tool around to remove the rear crank bearing.

utes. The only significant nitro-engine maintenance hurdle is related to the crankshaft bearings, which are subject to tremendous loads and sustained high-rpm operation. Add sticky fuel residue and dirt or road grime in the right places, and it's easy to see why you might need to replace a crank bearing every now and then.

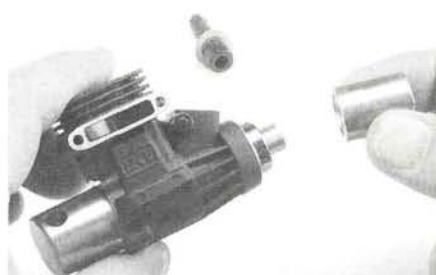
Xipp* offers a new tool that was designed to replace engine bearings in .12-size engines. None of the presently available standard hand tools are useful when removing a crank bearing, and without a specialized tool, bearing replacement requires a hazardous heating of the engine block.

This new Xipp tool makes bearing removal and replacement a snap. Working something like an inside chuck on a lathe, it grabs the bearing(s)' inside race and pulls it straight out of the engine block. How? Expand the "chuck" by tightening a tapered screw in its end; once the chuck is tight against the inside race, either of the bearings can be easily removed.

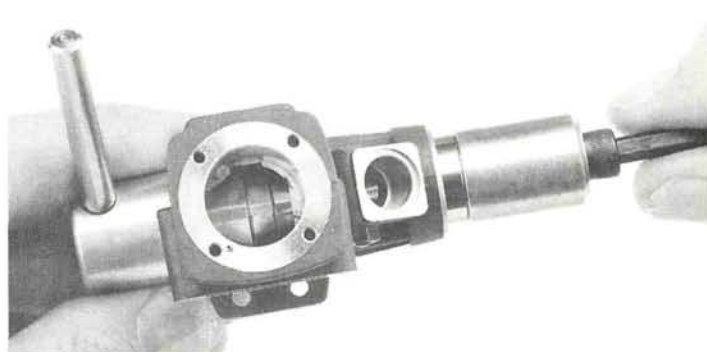
Use another tool (included in the package) to install the new bearing(s). This tool sim-



To install new bearings, start by placing a rear bearing on the installation tool and inserting the tool through the crankcase.



Slide a new front bearing over the other end of the installation tool, and you are ready to press both bearings into the crankcase.



The installation tool presses both of the bearings into the crankcase at the same time. This ensures proper bearing for optimum performance.

ply passes through the inside race and is tightened at one end to press the bearings into the engine block.

I've used this tool many times on many different engines and find it indispensable. It works on O.S., Thunder Tiger, Dynamite, OFNA and Kyosho .11 and .12 powerplants.

The Xipp tool's cost is a little on the high side (about as much as the engines it's designed to fix), but if you're serious about nitro racing, this one is a keeper. If you have more than two engines (or if you operate a hobby shop), it's time you picked up a Xipp bearing tool.

—Steve Pond

List price: \$74.99
Available at: \$65-\$70
Part no. 45000

LIKES

- Brass construction protects crankcase and bearings from damage.
- Easy to use.
- Comes with all you need to remove and install bearings.

DISLIKES

- It's a little pricey for casual nitro enthusiasts.
- It doesn't work on my .21 engines!

EXERGEN

D-501 Infrared Temp Sensor

You'll never have to spit on your engine again!

For the nitro racer, engine temperature is the most critical piece of tuning information. Having accurate temperature readings will help you determine the proper fuel-mixture settings for your engine and, more important, may help you to avoid the premature engine wear and damage that results from overheating.

There are a number of ways to measure a nitro engine's temperature, but one device is consistently used at the highest levels of national- and world-championship racing; it has become the standard by which other temperature sensors are judged: the Exergen* D-501 infrared temp sensor.

Top racing teams use the D-501 almost exclusively because it provides more consistently accurate temperature measurements than any other device that the R/C world's engine gurus have tested.

The D-501 can measure temperatures of from -50 to 550 degrees Fahrenheit (-45 to 287 degrees Celsius). When its probe tip is put into a nitro-engine cylinder head's glow-plug cavity a momentary switch provides an instant and accurate temperature reading.

Use one of the unit's three scan modes to obtain the information you want for your application:

- **"Regular" mode** displays a continuous temperature reading for as long as the button is held down. Use this to monitor temperature changes.

- **"Min" mode** scans for the lowest temperature. Hold the button down, and the D-501 will display the lowest temperature.

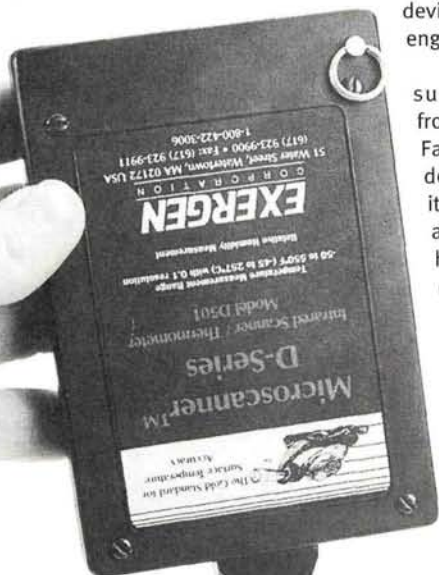
- **"Max" mode.** Depress the scan button, and this mode scans for and then displays the highest temperature. This is the most useful mode for nitro engines. It's especially helpful during quick pit stops; if you release the scan button too late after pulling the probe away from the engine and expose the probe to cooler temperatures, you'll still see the highest temp reading, even if the probe is in a cooler spot.

What makes the D-501 superior to other infrared temp sensors? According to Exergen, in addition to its superior manufacturing, the unit's "Automatic Emissivity Compensation System" (AECS) is what really separates it from the rest of the pack. In simple terms, the AECS system discriminates between engine-surface heat and environmental heat. Factors that can introduce significant errors—air-temperature changes, "emissivity" shifts from varying target temperatures, contact errors and heat-sinking errors—are all accounted for.

The D-501 follows the accepted, worldwide standards for temperature-sensing devices. It is both NIST traceable and in compliance with ISO 9001, 9002 and 9003 standards.

Unfortunately, the best temp probe on the planet comes with the highest price tag. The D-501 is listed at a whopping \$699 but is available on the street for \$250 to \$300. The D-501 isn't for everyone, but serious nitro racers who didn't worry about spending \$250 to \$350 on a top-of-the-line competition engine should think about protecting their investments and ensuring maximum performance with the Exergen D-501.

— Steve Pond



For quick, pinpoint-accurate engine-temperature readings, put the tip of the temp sensor into the cylinder-head's glow-plug opening, then press the red button on the back of the unit.

LIKES

- Extremely accurate.
- Compact, so it's easy to handle.
- Comes with a carrying case.

DISLIKES

- A little pricey for the casual enthusiast.

*Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■

PROJECT

by George M. Gonzalez

I KNEW RIGHT from the start that the Tamiya* TA03R chassis was engineered for competition because it's the only Tamiya vehicle with a transponder mount molded onto its chassis. I was determined to make the mighty "R" more formidable, but I also wanted to keep the car Tamiya Championship Series (TCS) legal. That meant I would use only Tamiya factory hop-ups and would modify the car in accordance with Tamiya's strict rules and regulations. Read on, and I'll show you which performance hop-ups you should consider, and I'll also pass along info on recently approved modifications that are allowed in the GT1 (modified sedan) class at the TCS.

MODEST BEGINNINGS

In some of my past Tamiya projects, the stock molded-tub chassis was the first thing to hit my workshop floor. This time around, however, I decided to retain the stock chassis because I wanted this car to be a sleeper.

When it was time to choose a body, I kept coming back to the Dome Avex Honda NSX body that came with the kit; this body is a real showstopper and provides plenty of downforce, which is just what the 03R needs. I also replaced the stock tires with Tamiya A-compound reinforced slicks with firm molded inserts because traction is the most important element in racing, and the A-compound tires are awesome on outdoor racetracks.

TAMIYA BUILDING A TCS



TA03 ALUMINUM FRONT HUB CARRIERS

These burly front hub carriers have 2 degrees of caster—3 degrees less than the stock plastic hub carriers. Running the car with less front caster will reduce "on"-power steering slightly but will make the car feel more stable going through and exiting corners.

CARBON REINFORCING PLATE

Sure, this piece is slightly lighter than the stock fiberglass upper plate it replaces, but let's face it, your primary reason for buying this is because it looks cool mounted on the chassis. Even though this is not an important hop-up, I still consider it a worthwhile investment.



BALL BEARINGS

The first hop-up you should consider is a complete set of ball bearings; Tamiya offers a set of rubber-sealed units for the TA03. Don't try to get away with using aftermarket bearings; only Tamiya hop-ups are allowed, and the TCS officials are extremely thorough during technical inspections!

TA03 ALUMINUM RACING STEERING SET

This is a worthwhile upgrade because these cool-looking aluminum bellcranks add strength, and they operate with less slip than the stock pieces.

SUPER LOW-FRICTION DAMPER SET

Although the stock plastic CVA shocks do work well once they've been filled with quality shock fluid and equipped with Tamiya's tuned springs, the optional aluminum-body shocks are among the smoothest available and will enhance the car's performance on the track. The optional shocks include Teflon pistons and Tamiya's stiff, Blue springs. A selection of anodized colors is available, but blue shocks are only available in Japan.

STAINLESS-STEEL SUSPENSION SHAFT SET

These lightweight suspension-arm hinge pins replace the heavier 3x22mm and 3x38mm screw pins that come with the kit. The stainless-steel units are also stronger and provide smoother action than the stock pieces. These are desirable items, but they are not absolutely necessary for competition.



HARD JOINT CUP SET

These hard-coated outdrives are designed to outlast the stock stainless-steel units and provide smooth power transfer without developing play in the area where the axle's drive pin mates with the outdrive. Pick up two pairs, if possible, but be sure to specify that you need the set designed for the optional ball diff because Tamiya also offers hard joint cups designed for the stock gear diffs.

ON-ROAD TUNED-SPRING SET

This humble item is one of most important hop-ups you can buy for your car. The set includes three pairs of color-coded tuned springs (spring rates: blue—firm, yellow—medium, red—soft). The springs will allow you to balance front and rear traction quickly and easily right on the track.

TURNBUCKLE STEERING ARM SET

Even though the stock threaded rods allow front toe-angle adjustment, the turnbuckles simplify adjustments because you do not have to remove a ball cup every time.

REDUCING WEIGHT

In the past, TCS rules clearly stipulated that you could not modify the vehicle in any way other than to bolt on Tamiya factory hop-ups. Things have recently changed, however, and it's now legal to reduce weight by grinding down chassis and suspension components. As you know, the stock tub chassis and front and rear gearboxes could stand to go on a diet and can benefit from some careful grinding to remove excess weight. But keep in mind that it's all too easy to go overboard a little—especially if you use a Dremel. I decided to leave the chassis on my project car alone, since the car is already plenty fast.

TA03R WARRIOR

ALUMINUM KINGPINS

Replace the heavy stock steel units with light aluminum ones, and you'll shave off nearly 4 grams of un-sprung weight. The blue-anodized ones on my car are available only in Japan, but they are TCS legal.



ALUMINUM COUNTERSHAFTS

This light aluminum unit weighs much less than the stock counter-shaft and dramatically cuts down rotating mass. When you install one, you can expect quicker acceleration and shorter stopping distances. You can also install one in each gearbox, as I did, to double the effect.



ALUMINUM MOTOR HEAT SINK

Be sure to pick up one of these because it performs two very important functions: it helps to dissipate motor heat (which will prolong run times and extend motor life), and it reinforces the plastic motor mount.



FINE-PITCH GEARS

The stock TA03R is equipped with durable, metric, 48-pitch gears that work just fine; however, your car will run more quietly and more efficiently when you install Tamiya's metric 64-pitch gears like the ones used on the TA03F-Pro and David Jun Limited Edition. The TA03 ball-diff kits include fine-pitch spur gear and countergear clusters that I highly recommend. Of course, you'll need to invest in a new set of metric 64-pitch pinion gears, but that won't be a major undertaking because Tamiya sells its pinions in handy packs of two.

TOURING AND RALLY BUSHING AND BALL CONNECTOR SET

A very important hop-up that's often overlooked is this bag full of screws, bushings and ball connectors. The kit's screws replace all the self-tapping step screws that secure the TA03R's upper suspension arms and steering linkages. Machine screws with steel sleeves replace the self-tapping step screws and reduce suspension play. This kit is included with the TA03F-Pro and David Jun Limited Edition and is highly recommended for all other TA03 chassis cars.

TURNBUCKLE UPPER ARMS

Replace the molded, non-adjustable front and rear upper arms with adjustable tie rods that allow camber adjustment. A stock, ready-to-run TA03R has a front and rear ride height of approximately 8 to 10mm, depending on the radio gear and electronics you install. The molded upper arms provide approximately 1.5 degrees of negative camber based on the stock ride height. Most racers will lower their cars to a ride height of approximately 4 to 6mm, however, and with a lowered ride height, the non-adjustable upper arms yield around 2 to 3 degrees of negative camber, which is an exaggerated angle for on-road cars. The turnbuckle upper arms allow you to adjust camber to suit your needs.

CARBON STABILIZER SUPPORT

Here's another cool-looking wid-get you can install on the chassis for a more high-tech look. The graphite stabilizer support has a vital function: it places an even amount of pressure across the mounting surface of the swaybar and prevents the bar from bending in the wrong place while cornering.

UNIVERSAL SHAFTS

These are slightly lighter than the stock dogbones and axles; they smooth power delivery, and they operate with less friction. You really only need a set for the front, but it won't hurt to get a set for the rear, as I did.

TA03 ALUMINUM REAR UPRIGHTS

These uprights actually clamp onto the rear suspension arms and operate with less play than the stock pieces. The aluminum uprights are also much stronger than the stock pieces and have a serious race-ready look.



ARAMID FIBER DRIVE BELT

Tamiya's optional Aramid drive belt operates with less friction than the stock drive belt because it is thinner, weighs less and is more flexible, and it is an easy (and inexpensive) way to reduce drive-train friction considerably, so take advantage of it.

TA03 ALUMINUM PULLEYS

Tamiya's optional aluminum drive pulleys weigh about the same as the stock plastic pieces, but they seem to repel dust and road grime much better. The result is a smoother-running, longer-lasting drive belt. Although these optional pulleys are not "must have" items, they are certainly worthy of consideration.

FLUORESCENT STABILIZER SET

Tamiya's optional tuned swaybars are a must. They help to keep the chassis parallel to the track surface while cornering, and that ultimately lowers lap times. The set includes color-coded swaybars in three diameters to help fine-tune chassis roll on each end of the car.

BALL DIFFERENTIALS

The stock bevel-gear differentials are bomb-proof and work well in low-power applications. The moment you install a motor designed for competition, however, the weight transfer that takes place when you accelerate, brake and corner will overtax the stock gear diffs, and that will cause erratic handling. When you install ball differentials inside the front and rear gearboxes, the car will carry more speed through the corners.



PARTS LIST

TOURING AND RALLY CAR

Turnbuckle upper arm set (2)—53192.
Turnbuckle tie-rod set—53191.
Bushings and ball connector set—53144.
1/10 touring car hard joint cup set (2)—53218.

TA03R

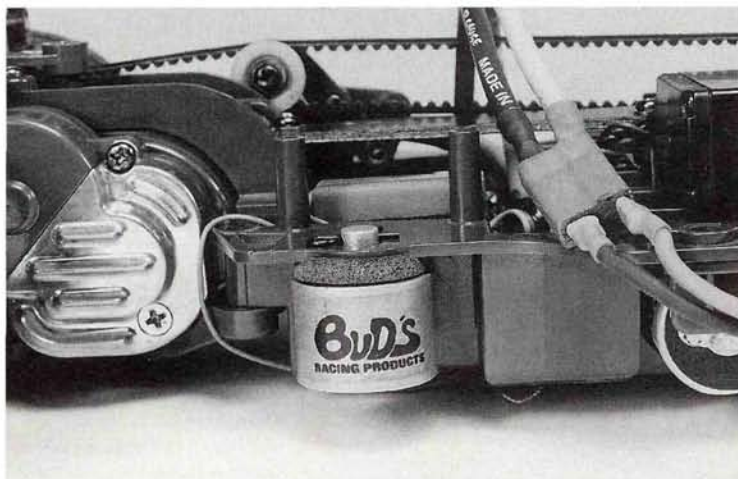
Carbon reinforcing plate—53312.
Ball-bearing set—53296.
Ball differential (2)—53267.
Stainless-steel suspension-shaft set—53266.

ALUMINUM

Motor heat sink—part no. 53275.
Countershaft (2)—53274.
TA03 front hub carriers—53316.
TA03 rear uprights—53288.
TA03 racing steering set—53326.
TA03 pulleys—53286.

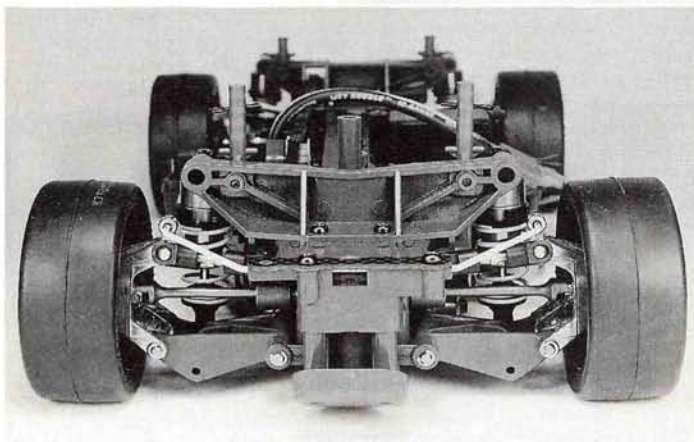
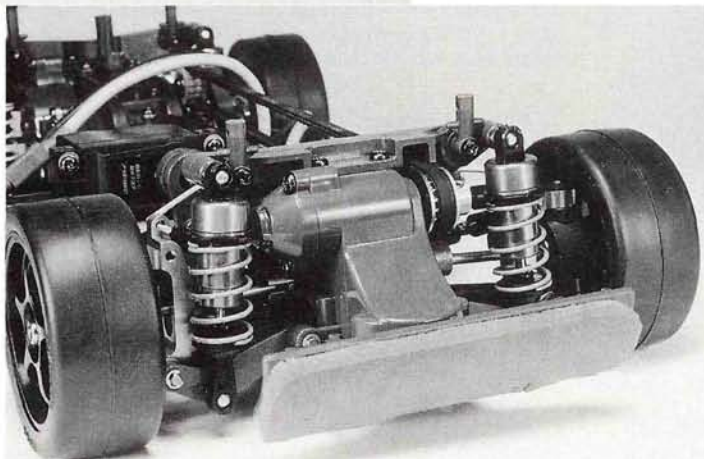
OTHER PARTS

Aramid drive belt—53278.
Super low-friction damper set—53280.
Fluorescent stabilizer set—53276.
On-road tuned-spring set—53163.
Tamiya "L" parts fine-pitch gears—50704.
TA02 and FWD car universal shaft set—53172.
Carbon stabilizer support (2)—53312.



Left: the TA03R features a transponder mount on the chassis; the weight of the transponder helps offset some of the motor's weight. The BRP practice transponder keeps my car's handling consistent between heats.

Right: the front end of my 03 looks stock except for the addition of the low-friction damper set. Close observation reveals that universal drive shafts, hard joint cups, stainless-steel suspension shafts (hinge pins), aluminum hub carriers and kingpins have also been added.



Check out the aluminum rear uprights; these units are trick. Most of the front upgrades can also be found in the rear. The blue-anodized shocks are only available in Japan, but California R/C Center stocks them occasionally, along with other exotic Tamiya products.

PERFORMANCE

Since my hopped-up TA03R was built in accordance with TCS rules, I felt it was appropriate for it to make its first run at Tamiya America's permanent outdoor track in Aliso Viejo, CA. I took along my friend and fellow *R/C Car Action* contributor Eugene "Geno" You, who also owns an 03R chassis and is a very competitive racer. My initial setup worked quite well, but the car had a slight push that was resolved by swapping the firm Blue springs in the rear for a set of medium Yellow springs (see the "Baseline Setup" sidebar for details on chassis setup).

BASELINE SETUP

FRONT SUSPENSION

Ride height: 5mm
Camber: 1.5 degrees
Toe angle: 0
Swaybar: yellow

SHOCKS

Oil: 80WT Associated*
Internal limiters: 3mm plastic spacer
External limiters: 1 Tamiya black rubber O-ring
Pistons: 1-hole
Springs: Blue
Preload: 1mm
Overall length: 66mm

REAR SUSPENSION

Ride height: 5.5mm
Camber: 1.5 degrees
Swaybar: yellow

SHOCKS

Oil: 80WT Associated
Internal limiters: 3mm plastic spacer
External limiters: none
Pistons: 1-hole
Springs: Yellow
Preload: 4mm
Overall length: 66mm

From that point on, my car was dialed and was the second fastest car at the track. Equipped with an 11-turn Maxtec motor, Geno's car was clearly the fastest, but his setup was way too loose—at least, that's what I thought after taking a few laps with it. My own car felt far more stable and was almost impossible to over-drive.

The next test drive took place at my home track, which happens to be So Cal raceway in Huntington Beach. To disguise the car, I installed an Andy's Stratus body and bolted on a complete set of Yokomo Inch-Up wheels with firm Sprint tires. Unfortunately, the car did not feel as dialed as it had at the Tamiya track, but after a little wrenching, I had it running alongside some of the fastest cars there. Tamiya vehicles have a distinguishing sound that's easy to spot, but my vehicle sounded as smooth and efficient as any dual-belt car I have driven. I surprised quite a few racers when I removed the body and revealed that I was running a Tamiya TA03R.

FINAL THOUGHTS

As you may have guessed, I love to build, race and modify Tamiya vehicles. The TA03R was no exception, and this car was probably the most fun to build. My modified TA03R also handles better than any other Big T vehicle that I have ever owned, and that is surprising because it still looks stock. If you are looking for a cool new project to work on, I highly recommend that you choose an 03R as your next mission. I'm sure you'll have as much fun as I did.

**Addresses are listed alphabetically in the Index of Manufacturers on page 225. ■*

HOW TO Set up the HPI RS4 MT for Off-Road Racing

by George M. Gonzalez



HPI's Dodge Ram body is better than the Ford F-150 for off-road racing because of its low-profile one-piece rear wing. The Ford F-150's 3-piece rear wing is too large and fragile for off-road racing. If you do decide to go off-road racing with the Ford body, remove the rear wing, or make a smaller wing from a piece of scrap Lexan and use that instead.

Although the HPI* RS4 MT 4WD racing truck was designed as a "go anywhere, do anything" fun truck, any hobbyist with an inclination to race will see beyond its flashy chrome wheels and treaded street tires and will focus on its serious off-road racing features. Just think about it: the MT has the wheelbase and width of a 2WD stadium racing truck and the dual-belt 4WD system of a touring car. That combination equals stability and gobs of traction!

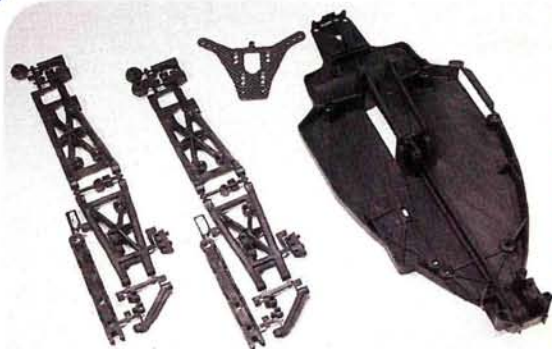
I decided to convert my RS4 MT into a single-purpose, off-road racing truck and my observations are based on three months of track testing at two of Southern California's premier indoor off-road racing tracks: So Cal Raceway in Huntington Beach and M n M Hobbies in Corona.

It's time to start wrenching, so grab your truck and clear off some space on your workbench.

Lighten up

HPI recently released several graphite composite chassis and suspension components for the MT that are designed to reduce weight as well as stiffen up the truck in all the right places. The carbon-graphite chassis (part no. A465) weighs about 12 grams less than the stock chassis and eliminates most of the unwanted chassis flexing. Front and rear carbon-graphite suspension arms (A466) are sold in one package with graphite shock-tower supports, battery straps, hex wheel hubs and servo mounts.

HPI also offers two woven-graphite parts: the graphite rear shock tower (A705) is light and looks cool. The optional graphite front chassis brace is a must-have item because it stiffens the chassis for better handling and provides additional crash protection. Installing graphite components on your MT is a smart way to reduce weight and improve handling.



HPI has front and rear tuned springs for the RS4 MT. The Yellow soft springs are lighter than the stock Black springs, and the Blue firm springs are stiffer than the stock units. I used these springs with great success.

START WRENCHING

To take advantage of the tips in this article, you'll need a couple of tuning tools in addition to the stuff you always keep in your toolbox. The first is an inexpensive set of calipers. You'll need them to measure overall shock lengths and preload spacing and camber and steering-rod lengths and to assist with front and rear ride-height and chassis-tweak adjust-

ment. You'll also need a camber gauge. I recommend RPM's* camber gauge because it is compact, inexpensive and accurate.

Even though the car shown has been highly modified, most of my tips will work with a box-stock RS4 MT. Keep in mind, however, that tire selection alone is responsible for nearly 80 percent of tuning, so you'll need good-quality off-

road racing rubber. You'll also need tuned springs and a selection of shock oil; necessary items to get any racing truck dialed.

Setting up the MT for off-road racing is only slightly different from dialing in a 2WD off-road truck; in fact, the primary difference is that the MT is much easier to set up and drive because of its forgiving 4WD system.

BASELINE SETUP

■ FRONT SUSPENSION

- Camber: 2 degrees
- Toe angle: 0
- Ride height: 31mm
- Camber-rod location: inside hole on bulkhead.
- Swaybar: none

■ FRONT SHOCKS

- oil: 50WT
- pistons: no. 1
- springs: HPI Hard Blue (9.5 coils)
- internal limiting: none
- external limiting: none
- preload: 6mm
- overall length: 99.5mm
- lower shock location: inside hole

■ REAR SUSPENSION

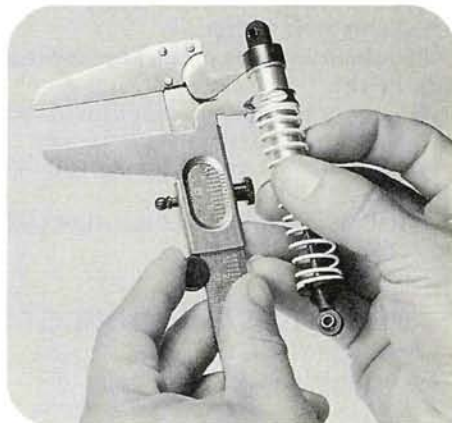
- camber: 2 degrees
- ride height: 28mm
- standard camber-rod location: outside hole on bulkhead and lower middle hole on hub carriers.
- optional camber-rod location: inside hole on bulkhead and lower outside hole on hub carriers (will provide maximum camber rise during suspension compression, but you must replace the stock 59mm threaded rods with longer 71mm/2.75 inch tie rods).
- swaybar: none
- shock-tower mounting location: mount shock tower on upper holes to increase shock travel.

■ REAR SHOCKS

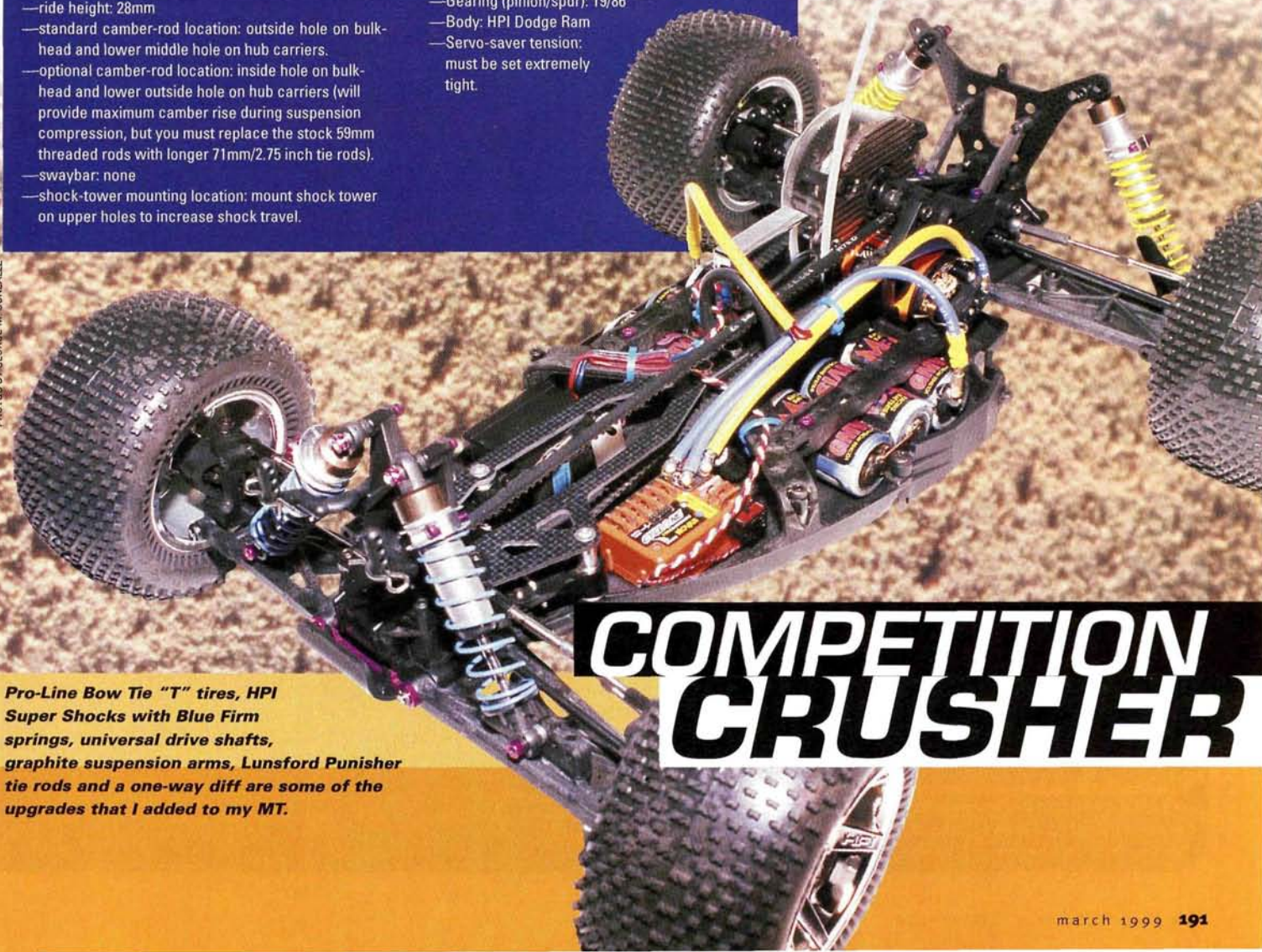
- oil: 40WT
- pistons: no. 1
- springs: HPI Soft Yellow (15 coils)
- internal limiting: none
- external limiting: none
- preload: 13mm
- overall length: 114mm
- shock-mounting location (upper/lower): middle hole on shock tower/inside hole on suspension arm.

■ MISCELLANEOUS

- Tires (F/R): Pro-Line* Bow Tie "T" in M3 compound; use M2 compound if you run a one-way front diff.
- Radio: Airtronics* CX2P
- Motor: Team Orion* 15-turn triple
- Batteries: GM-VIS RC2000
- Servo: Airtronics 94157
- Speed control: Novak* Cyclone
- Receiver: Novak Mercury 27MHz
- Gearing (pinion/spur): 19/86
- Body: HPI Dodge Ram
- Servo-saver tension: must be set extremely tight.



Inexpensive calipers will help you make more accurate adjustments. Here, shock preload is measured.



COMPETITION CRUSHER

Pro-Line Bow Tie "T" tires, HPI Super Shocks with Blue Firm springs, universal drive shafts, graphite suspension arms, Lunsford Punisher tie rods and a one-way diff are some of the upgrades that I added to my MT.

NEED MORE STEERING?

Try one or more of the following if you need more on-power steering, but make only one adjustment at a time, and test the results before making subsequent adjustments:

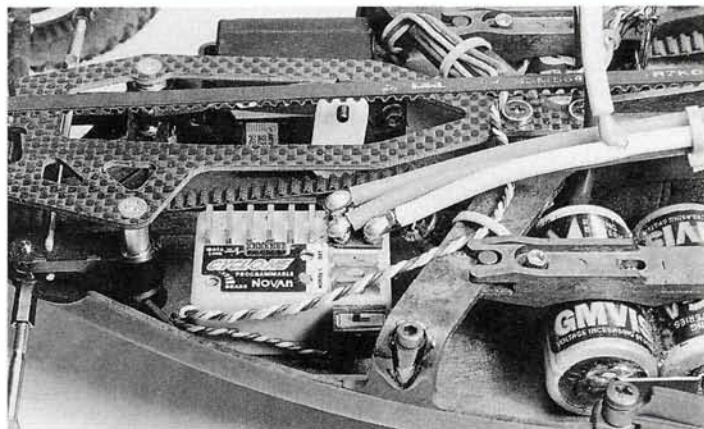
- Increase rear-wheel camber to 3 degrees.
- Reduce front-wheel camber to 1 degree.
- Set the slipper clutch a little tighter
- Increase front-wheel toe-out by 1 degree.
- Switch back to stock, Black, 9-coil (medium) front springs.
- Increase rear-spring preload to raise rear ride height.
- If you run the optional rear camber-rod location, go back to the standard setup.
- Replace 40WT rear shock fluid with 45 to 50WT.
- Install harder-compound rear tires (M2 instead of M3).

What's the difference?

Although the MT will work just fine with stock bevel-gear differentials in place, the installation of front and rear ball differentials will ultimately lower your lap times. The difference between a ball diff and a gear diff is most noticeable when the vehicle corners. For example, when the truck takes a sharp right corner, the left front suspension will compress because most of the vehicle's weight is transferred to the left front wheel. At the same time, the right front suspension will extend because it isn't carrying any weight at all. The stock gear diffs tend to distribute all the motor's power to the wheel that's carrying the least weight—in this case, the right front wheel. A ball diff will distribute the motor's power more evenly to both the left and right wheels and give better control.

For me, having a ball diff in the rear and the optional one-way diff in the front is the fastest possible combination. The one-way diff provides awesome acceleration and incredible steering! Just be sure to dial out some brake by adjusting your transmitter's low-end throttle EPA because your truck will now brake with only the rear wheels, just like a typical 2WD racing truck.

The optional, woven-graphite, front chassis brace limits chassis flexing and adds a little crash protection. A Novak Cyclone channels the "go" power, and an Airtronics 94157 servo cranks the wheels with authority. I also added an Airtronics heavy-duty servo horn for extra insurance.

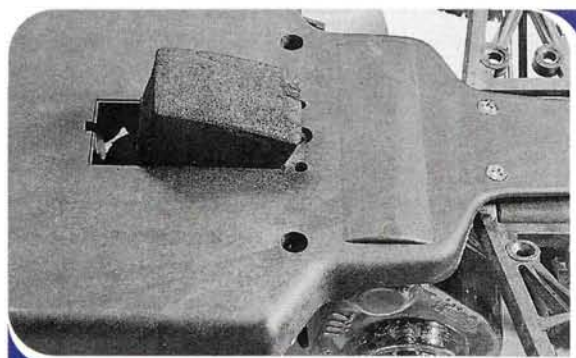


Traction talk

Tire choice is the single most important factor in setting up the MT for off-road racing. Ironically, just about every tire combination I tried provided good results, but that's mostly due to the vehicle's 4WD drive train and wide stadium-truck stance. Pro-Line and Team Losi* offer many types of off-road tires in several compounds to suit track conditions. The key is to find out which tires and compounds work best at the track where you plan to race. Do a little research.

When you've chosen a particular tread pattern, buy a complete set of four tires. It would be wise to pick up an additional pair of similar tires in a slightly harder (or softer) compound, so you'll be able to balance traction as needed. Fortunately, the MT's front and rear wheels are interchangeable, and that allows you to easily swap wheels and tires.

Tires are the single most important factor in the tuning process. The Pro-Line Bow Tie "T" tires are awesome!



To help keep the batteries secure on the chassis, stuff a couple of Team Losi battery-adjustment foams into the battery compartment.

Battery and motor selection

The MT will accommodate stick- or saddle-pack battery configurations. Although the truck works quite well with standard stick packs, a saddle pack will distribute weight more evenly across the chassis and will provide a little more steering. Assembling saddle packs can be time-consuming, but in my opinion, it's well worth the time.

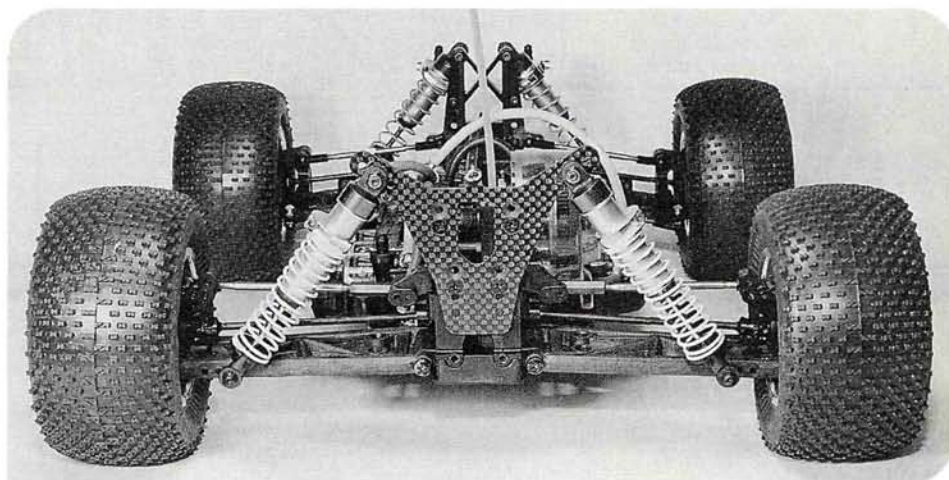
If you decide to install a saddle-pack battery, here's a tip that will allow you to mount the cells more securely: open the small, rectangular door on the bottom of the chassis by removing the single, flat-head self-tapping screw. Install two Team Losi Double-XT battery-adjustment foams inside and then re-install the door. The battery-adjustment foams will prevent the cells from moving around.

When it comes to motor selection, don't set your sights too "low." Do not install a low-turn motor unless you like racing hard and fast for 3 minutes and 30 seconds! Run time is an important consideration with the MT; it seems to like motors in the 14- to 16-turn range.

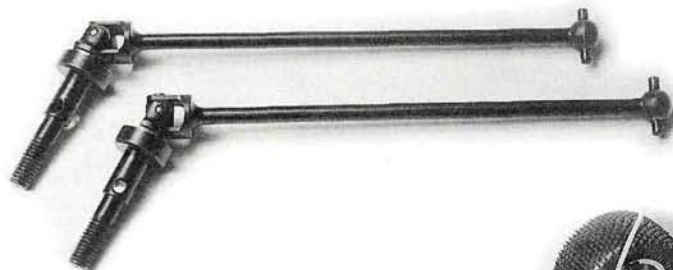
REAR END A LITTLE LOOSE?

Try one or more of the following. Again, make only one adjustment at a time and test the results before making additional adjustments:

- Increase front-wheel camber to 3 degrees.
- Reduce rear-wheel camber to 1 degree.
- Set the slipper clutch a little looser.
- Try the optional rear camber-rod mounting location.
- Install harder-compound front tires.
- Lower the rear ride height or raise the front ride height slightly by adjusting spring preload.
- Install softer rear springs (Losi Yellow or Pink soft springs).
- Replace the 40WT rear shock fluid with 30 to 35WT.

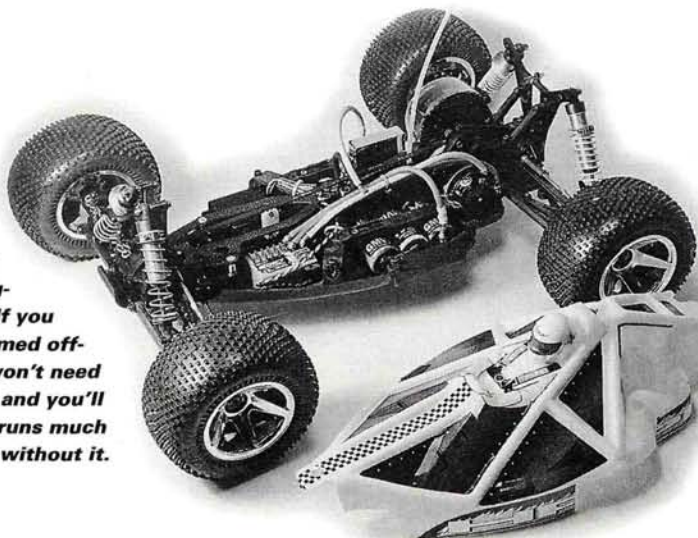


This rear-end shot reveals that the rear shock tower has been mounted in the upper position to increase travel. Yes; that's the optional woven graphite shock tower. I removed the shock's internal limiters to increase downtravel. I added graphite arms, titanium tie rods, Super Shocks with soft Yellow springs and Hammad Ghuman aluminum spring-preload adjusters. Notice the long camber links.



Optional HPI universal-joint drive shafts are a worthwhile investment. The stock dogbones are not hardened and bend easily. They also fall out from time to time when going over jumps. If you must use the stock dogbones, install a couple of O-rings inside the outdrives to prevent the dogbones from being ejected when the suspension is fully extended.

I didn't use the inner body shell with the driver figure during testing. If you race on well-groomed off-road tracks, you won't need the inner shell, and you'll find that the truck runs much cooler without it.



OPTIONAL PARTS TESTED

HPI

- Ball-bearing set—part no. B043.
- Front 39-tooth one-way diff—A906.
- Rear 39-tooth ball diff—A905.
- Super shock set (F/R)—A723/A735.
- Woven-graphite rear shock tower—A705.
- Woven-graphite front chassis brace—A700.
- Universal dogbones (F/R)—A518/A519.
- Carbon-graphite suspension arms—A466.
- Carbon-graphite chassis—A465.
- Heat-sink motor plate—A289.

Other Manufacturers

- Pro-Line Bow Tie "T" tires (M2 fronts, M3 rears).
- Lunsford* titanium turnbuckles.
- Hammad Ghuman* aluminum preload adjusters.

Tweak tips

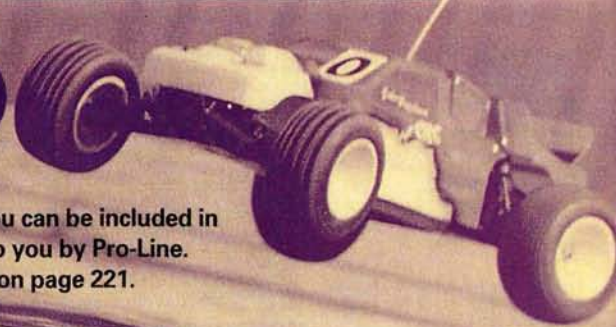
If your truck does not handle consistently even though it appears everything is assembled properly, it's time to check the tweak; if it's running fast and turning equally well in both directions, you're good to go. Here's how you check and adjust chassis tweak, just in case:

- Make sure that the right and left front and right and left rear shocks are of the same length. Measure them with calipers and thread their rod ends in or out as needed to shorten or lengthen them. Refer to the "Baseline Setup" section of this article for proper shock lengths.
- On the front of the chassis (side to side, not front to rear), find the exact centerline. Mark that spot with a scribe. Repeat this on the back of the vehicle. You are now ready to check chassis tweak. Place the truck (with the motor battery and electronics installed) on a perfectly flat surface such as a glass tabletop, and push down on the suspension to allow the vehicle to settle at ride height.
- Put the blade of a sharp hobby knife on the front centerline and slowly lift the vehicle. If one tire rises before the other, the chassis is tweaked. Simply lengthen the shorter shock or shorten the longer shock by loosening or tightening the shock's lower mounting ball joint. The goal is to have both tires rise at the same time. Do the same task at the rear, and you'll be rewarded with a truck that tracks straight and jumps and lands squarely.

FINAL THOUGHTS

I hope that this article will help you get your HPI RS4 MT dialed to your track. These tips have helped me immensely, and my MT is the fastest truck I own. Of course, its 4WD traction is a tremendous advantage, and because of this, most tracks will not allow the MT to race against the 2WD off-road trucks. Hey; if enough of us show up with our MTs, track owners might start a class just for us. Either way, it's fun just to go to the track during practice and blow away all the 2WD stadium trucks.

**Addresses are listed alphabetically in the Index of Manufacturers on page 225.*



Track Directory

FREE! Track owners! You can be included in this directory brought to you by Pro-Line.
Just fill out the coupon on page 221.

YOUR 1999 TRACK GUIDE

ALABAMA

Beacon Point RC Raceway, 15717 Beacon Point Drive, Tuscaloosa, AL, 35406; Don, (205) 333-8679

Hobbytown USA Raceway, 450-Q Schillinger Rd., N., Mobile, AL 36608; Rob & Kari Baker, (334) 633-8446

Lagoon Park R/C Raceway, 2730 Lagoon Park Dr., Montgomery, AL 36109; Alex Love, (334) 272-6438

Phenix Raceway & Hobby, 2006 Opelisk Rd., Phenix City, AL 36867; Chris Watson, (334) 298-9786; <http://www.xoom.com/PhenixHobby>

R/C Hi-Tech Raceway, 3303 Meridian St., Huntsville, AL 35811; Rick Chambers, (205) 539-1347

R/C Thunder Tracks, 1530 Schillinger Rd., Mobile, AL 36675; for mail, use 8125-2 Moffett Rd., Semmes, AL 36575; Jerry Hurst, (334) 645-2787

ALASKA

Fairbanks R/C Car Club 510 Juneau Ave. Fairbanks, AK 99701; Dan Anderson, (907) 456-5494

ARIZONA

HobbyTown Mountain Raceway, 1500 E. Cedar Ave., Cedar Hills Shopping Center, Flagstaff, AZ 86004; Richard, (520) 214-9887

HobbyTown Raceway, 13802 N. Scottsdale Rd., Scottsdale, AZ 85250; (602) 948-3946

HobbyTown Raceway, 1915 East Baseline Rd., Gilbert, AZ 95234; Dennis, (602) 892-0405

Hobbytown Raceway, 1102 E. 22nd St., Tucson, AZ 85704; (520) 882-8888

HobbyTown U.S.A., 5030 E. Ray Rd., Phoenix, AZ 85044; Linda McFarland, (602) 598-5282

Kiwanis Park R/C Raceway, 855 Magnolia Ave., Yuma, AZ 85364; Jim Liggett, (520) 539-7148

Quarter Flash's Squirtin' Dirt Raceway, 16301 S. Santa Rita #C, Sahuarita, AZ 85629; Dave, (520) 625-9274

R/C Sports Mania, 3550 N. 35th Ave., Phoenix, AZ 85017; Brian Dick, (602) 278-3671

Scottsdale R/C Raceway, 3023 N. Scottsdale, Scottsdale, AZ 85251; Scott Anfinson, (602) 945-2186

Speedway Hobbies, 2710 N. Steve's Blvd., Ste. 8, Flagstaff, AZ 86004; Gary McAllister, (520) 714-1566

ARKANSAS

Arkansas R/C Car Association, 101 W. 52nd St., N. Little Rock, AR 72118; William Byrd, (501) 753-1286

Airport Speedway, 1521 Airport Loop, Rogers, AR, 72756; Mike Dollar, (501) 636-7123

Grand Slam Superspeedway, 5300 S. Zero St., Ft. Smith, AR 72901; Bryon Shumate, (501) 684-1994

Hobby Town USA, 356 E. Joyce, Fayetteville, AR 72703; Darrell Irvin, (501) 571-3730

Sparks R.C. Raceway, 7194 Greene 721 Rd., Paragould, AR 72450; Tommy Sparks, (501) 239-3606

CALIFORNIA

California City R/C Car Track, 8349 Jacaranda Ave., California City, CA 93505; (760) 373-3765

Castle Hobbies, 14918 Camden Ave., San Jose, CA 95124; (408) 377-3771

Cats West/Hawk's R/C Raceway, 1201 West 10th St., Antioch, CA 94509; Mike Rogers, (510) 779-1665

Cycle Art Raceway, 2211 N. Pleasant Way, Fresno, CA 93705; Jesse Shapiro, (209) 233-3665

Discount Hobby Warehouse, 7750 Convoct Ct., San Diego, CA 92111; (619) 560-9633

Freedom Park Raceway/Ventura Roadrunners, Freedom Park Dr., Camarillo, CA 93010; Chris Jones (805) 656-RACE

Greater Los Angeles R/C Racing Club, 3756 Cardiff Ave., #305, Los Angeles, CA 90034; Nikko Ko

Hobby Central Raceway, 34255 P.C.H., Unit 107, Dana Point, CA 92629; John, (619) 513-0373

Hobby Central II Raceway, 13461 Community Road, Poway, CA 92064; John, (619) 513-0373

Hobby Paradise Raceway, 1880 Art Gonzales Pkwy., Selma, CA 93662; Steve Keiser, (209) 896-4804

HobbyTown, Parktown Plaza Shopping Center, 1350 S. Park Victoria Dr. #21, Milpitas, CA 95035; (408) 945-6524

Hobby Warehouse, 8950 Osage, Sacramento, CA 95828; Roger Hubbard, (916) 381-7587

Hot Rod Hobbies, 25845 San Fernando Rd., #21, Saugus, CA 91350; Rod Weisbaum, (805) 255-2404

Jake's Performance Hobbies, 6650 Commerce Blvd., #21, Rohnert Park, CA 94928; Jake, (707) 586-3375

Just for Fun R/C Raceway, 509 S. State St., Ukiah, CA 95482; Don, (707) 462-7305

K&M Raceway, 22474-A Barton Rd., Grand Terrace, CA 92313; (909) 783-0899

Lake Tahoe Raceway/Sierra Hobbies & Raceway, P.O. Box 9969, South Lake Tahoe, CA 96158; Mark Osser or Greg Smith, (916) 541-4555

Lucerne Valley Raceway, 32800 Old Woman Springs Rd., #4, P.O. Box 2047, Lucerne Valley, CA 92356; Frank Rodrigue, (760) 248-7305

M n M Hobbies, 4225 Prado Rd., Ste. 103, Corona, CA 91720; Joe Stanovich, (909) 272-3545

M.R. C.A.R., McGreed Loop, Merced Airport, Merced, CA 95340; (209) 723-6662

Nor-Cal Mini-Speedway, 519 Bush St., Woodland, CA 95695; Steve Van Atta, (530) 668-5678

Perris Recreation R/C Track, 120 N. Perris Blvd., Perris, CA 92370; (909) 943-6603

R.A.C.E., 724 Mangrove Ave., Chico, CA 95926; HobbyTown U.S.A., (916) 899-2977

Race Corner of Marin, 14 Commercial Blvd., #111, Novato, CA 94949; Mike, (415) 883-0388

Race Prep Raceway, 20115 Nordhoff, Chatsworth, CA 91311; Steve Dunn, (818) 709-6800

Racer's Haven Raceway, 7401 White Lane #12, Bakersfield, CA 93309; Martin Buchanan (805) 835-0441

Radio Control Products, 201 E. Magnolia Blvd., #148, Burbank, CA 91502; Tab, (815) 846-4208

Rams 1/8-scale Gas and 1/16 scale Gas On-Road, Mission College, Lot B, 3000 Mission College Blvd., Santa Clara, CA 95054-1897; Steve Tsuruda, (415) 675-5609

Ranch Pit Shop, 1655 E. Mission Blvd., Pomona, CA 91766; Ken Shintani, (909) 623-1506

Ripon R/C Speedway, 701 N. Acadia Ave., Ripon, CA 95366; Dan Tison, (209) 599-5160

R.O.C.K.S., 2525 N. Texas St., Fairfield, CA 94533; Mike Learn, (707) 447-0492

Showtime R/C Speedway, 3709 Abbott Dr., Bakersfield, CA 93312; Grant or Karen Kniffen (805) 589-0493

Simi Valley Groundpounders, 392 C - East Easy St., Simi Valley, CA 93065; Jack Kasten, (805) 584-8211

So. Cal R/C Raceway, 19118 Brookhurst St., Huntington Beach, CA 92646; Jim Blauvelt, (714) 963-7484

S.R.S Offroad Raceway, 1038A N. Davis Rd., Salinas, CA 93907; Randy Loveless, (408) 424-4044

Team Air Racing Club, 18208 Imperial Hwy., Yorba Linda, CA 92686; Don or Nicky, (714) 579-7488

Track Heaven, 6196 Child's Ave, San Diego, CA 92139; Loure, 475-2020

Tri-Valley Auto Racers, Livermore Elks Club, 940 Larkspur, Livermore, CA 94550; Mike Stone, (510) 455-6833

Ultimate Hobbies, 2378 North Orange Mall, Orange, CA 92865; Cliff Murakami, (714) 921-0424

Valley R/C Racepark, 146 S. Santa Fe St., Hemet, CA 92344; Valley Wide Recreation, (909) 925-9331 or (909) 654-1505.

COLORADO

MHOR R/C Raceway, 15540 East Batavia Dr., Aurora, CO 80011; Jess Brockman, (303) 343-0151

S&T R/C Raceway, 323 Auburn Dr., Colorado Springs, CO 80909; Tim Bishop, (719) 574-2910

Valley West R/C Club, 2202 I Road, Grand Junction, CO 81505; Waymond Williams, (970) 242-8846

CONNECTICUT

Central CT Auto Racers, Davis Hobbies II, 45A Welles Street, Glastonbury, CT 06033; (860) 633-3056

East Lyme R/C Kar Klub, Society Rd., East Lyme, CT 06333; Howard Estorm (203) 483-9201

K/N R/C Speedway Inc., West St., Stafford Springs, CT 06076; for mail, 44 Clearview Rd., Moodus, CT 06469; (860) 684-9896

Racing and Entertainment Center, 29 Olcott St., Manchester, CT 06040; Peter Tierini, (860) 643-4768

Key to Symbols

- Indoor
- Outdoor
- Off-road
- Oval
- Dirt oval
- Carpet
- Concrete
- Asphalt
- On-site hobby shop
- AC power
- Auto lap-counting
- Food available

R/C Madness, 640 Enfield St., P.O. Box 64, Enfield, CT 06082; Christopher Marcy, (860) 741-6501

Xtreme Radio Control, 469 Danbury Rd., New Milford, CT 06776; Paul or Pete, (860) 354-4703

DELAWARE

DARCAR Club, Blue Hen Corporate Center, Rte. 113, Dover, DE, 19901; Steve, (302) 697-8350.

Eastcoast Off-Road, Rt. 3 Box 256 A, Laurel, DE 19956; Darrin Shockley or Steve Nelson, (302) 875-8160

The Hobby Outlet: Tracks of the Outlet, Salisbury Rd., Dover, DE 19901; Steve, (302) 697-8350

Hobby Stop Speedway, RD4, Box 100, Rte. 13, Seaford, DE 19973; Remy Haynes, Jr., (302) 629-3944

FLORIDA

B-T R/C Central, 811 Playground Rd., Ft. Walton Beach, FL 32547; (850) 863-1666

Branford R/C Speedway, Rt. 3, Box 240, Branford, FL 32008; (904) 935-0758

Broward County R/C Race Club, Mills Pond Park, Ft. Lauderdale, FL; Ed Decemero, (954) 525-3304

Burton's R/C Raceway, 4215 Mustang Rd., Lakeland, FL 33803; Louie Burton, (941) 665-1322

Coral Springs Roadrunners, P.O. Box 9632, Coral Springs, FL 33075; John Argentinio, (954) 925-8284

Farmer's Hobby Shop & Raceway, 5006-3 E. Broadway, Tampa, FL 33619; Greg Cardone, (813) 248-3314



First Coast Speedway, 6410 Walther Dr., Jacksonville, FL 32211; Bob Thompson, (904) 743-2161



5-Fifty-5 R/C Raceway, State Road 555, Bartow, FL 33830; Henry Haacke (941) 533-0539



Frontier Race Track, 15260 N.E. 244th Ave., Salt Springs, FL 32134; Harold Reel, (352) 685-2881



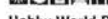
Gainesville R/C Speedway, P.O. Box 693, Melrose, FL 32666; 130 NW 14th Ave., Gainesville, FL 32601; (352) 495-3600



G & C Hobby Raceway, 1228 Hypolux Rd., Lantana, FL 33462; George, 561-547-3812



Greater Orlando Auto Racers, 970 Keller Rd., Altamonte Springs, FL 32714; Rob Michael, (407) 834-9299



Hobby World Raceway, 7273 103rd St., Jacksonville, FL 32210; Greg, (904) 742-9022



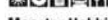
The Hobby Stop Raceway, 5765 Manatee Ave. W., Bradenton, FL 34209; Rich Konnen, (941) 798-9638



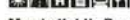
The Hobby Stop Raceway, 2454 Land O'Lakes Blvd., Land O'Lakes, FL 34639; Rich Konnen, (813) 948-0606



Minnreg R.C. Club, 6340 126th Ave. N., Clearwater, FL 34624; David Fox, (813) 787-6032



Monster Hobbies, 616 Southeast Penn St., Deerfield Beach, FL 33441; (954) 428-9118



Morris Kohl's Raceway and Hobby Shop, 1202 W. Waters Ave., Tampa, FL 33604; Morris Kohl, (813) 931-1626



My Rose, 1695 W. Indiantown Rd., Jupiter, FL 33458; Mark Watson, (561) 744-3800



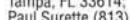
NORRA, 3300 Santa Barbara Blvd., Naples, FL 33999; Jerry Pecar (941) 455-9065 or Mark Benfield, (941) 263-6861



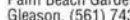
Paradise Speedway, Mile Marker 98.5 U.S. 1, P.O. Box 738, Key Largo, FL 33037; Joe Ravard, (305) 451-3707



Paul's Stadium Raceway, 4511 W. Dr. M.L. King Jr. Blvd., Tampa, FL 33614; Paul Surette, (813) 872-8662



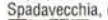
PBG R/C Motor Park, 6351 Barbara St., Palm Beach Gardens, FL 33418; Doug Gleason, (561) 743-9791 or Tim Case, (561) 627-2608



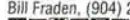
Pro Hobbies Speedway, 715 N. Lake Pleasant Rd., Apopka, FL 32712; (407) 886-4615



Port St. Lucie Racing, 3626 SW Rivera St., Port St. Lucie, FL 34953; Frank Spadavecchia, (561) 336-8711



River City R/C Car Club, 9711 Sharing Cross Dr., Jacksonville, FL 32257; Bill Fraden, (904) 268-1948



Sarasota RC Speedway, 8475 Cooper Creek Blvd., University Park, FL 34201; Jim Wilson, (941) 358-7047



Sea Coast Watercraft and Hobby, 3119 Barrancas Ave., Pensacola, FL 32507; Vic Lakatos, (850) 457-1493



South Daytona R/C Raceway, 2121 S. Ridgewood Ave., South Daytona, FL 32119; Mike Bean, (904) 426-6481



South Palm Beach Racers, South County Regional Park, West Boca Raton, FL 33486; Mike Fazio, (561) 338-5367



Superior Hobbies R/C Parking Lot Racing, 430 E. Hwy. 436, Ste. #106, Casselberry, FL 32707; Rob Michael, (407) 834-9299



Tallahassee R.C. Raceway, Tom Brown Park, Eastwood Dr., Tallahassee, FL 32311; Roland Costine, (904) 671-2814



Tampa Bay R/C Club, P.O. Box 10224, St. Petersburg, FL 33733; Dick Gillette, (813) 526-0744



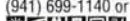
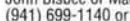
Tampa Hobbytown R/C 4 Slot Car Raceway, 15702 N. Dale Mabry, Tampa, FL 33618; Max and Judy Rosenroth, (813) 968-7233



Tropical R/C Raceway, Tropical Park, Miami, FL 33155; Pat Butler (305) 772-4122



Winterset Raceway, U.S. Rt. 27 South, Winterset Motel, Sebring, FL 33872; John Bisbee or Mac Mixer (941) 699-1140 or (941) 385-4448



GEORGIA

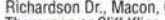
Anthony's Victory Lane, 129 East Hwy 80, Pooler, GA 31322; Anna Stephens, (912) 748-0847



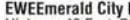
Dalton Raceway, 3036 Parquet Road, Dalton, GA 30720; (706) 226-6699



EEcheconnee Superspeedway, 2149 Richardson Dr., Macon, GA 31206; Andy Thompson or Cliff Kline, (912) 788-8731



EWEEmerald City R.C. Speedway, Highway 40 East, East Dublin, GA, 31021; Terry Cook, (912) 272-3856



The Flight Box Hobby Shop, 3134-C Rockmart Rd., S.E., Rome, GA, 30161-6826; Leslie Duke, (706)-234-3014



Hobby Town Raceway, 2301 Airport Thruway, Columbus, GA 31904; Frank Bastos, (706) 660-1793



HobbyTown Raceway, 225-B Tom Hill, Sr. Blvd., Macon, GA 31210; Marcus Lee, (912) 474-0061



Lake Mayer Raceway, 1430 Dale Dr., Savannah, GA 31406; (912) 598-9709



The Racer's Edge, 1530 Hwy. 19 N., Thomaston, GA 30286; Roger or Mark Wallis



Sandy Cross Speedway, Rt. 1, Box 1071, Hwy. 51, Royston, GA 30662; Morris Phillips or Wayne Fowler, (706) 245-9573



SHILOH R/C Raceway, 6362 Shiloh Rd., Hahira, GA 31632; Doug Burnett, (912) 794-2507



Silver Wings Raceway, 5611 Riverdale Rd., College Park, GA 30349; M. Bradshaw, (770) 991-2225



Stinger RC Super Speedway, 3769 Maysville, Rd., Commerce, GA 30529; Deric Sauls, (706) 335-5006 or (706) 335-9044



Sugar Bowl R/C Speedway, 5272 Nelson Brogdon Blvd., Sugar Hill, GA 30518; Shelley Bailey, (770) 945-6709



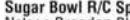
Valdosta Hobbies, 3998 Inner Perimeter Rd., Valdosta, GA 31602; Ron Hood, (912) 244-2101



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Valdosta Hobbies, 3998 Inner Perimeter Rd., Valdosta, GA 31602; Ron Hood, (912) 244-2101



HAWAII

A.S.I. Raceway, 4516 Akoa Rd., Kapaa, HI 96746; Arnold Morales, (808) 821-8132



Garden Isle R/C Racers, 5855 Ahakea St., Kapaa Kauai, HI 96746; Arnold Morales, (808) 823-0856



Kakaako Water Front Park Dragway, 98-029 Hekaha St., Bay #32, Alea, HI 96701; James Inkyo, (808) 487-5155



Keehi Lagoon Park, Leeward Community College, Waipahu, HI 96797; (808) 676-5486



Maui R/C Racing Association, 430 Hookahi St., #13, Wailuku, HI 96793; Tritech R/CHobbies, Radio Control Association, (808) 244-0526



Pearl City Raceway, 98-029 Hekaha St., Bay 32, Alea, HI 96701; James Inkyo, (808) 487-5155



Radio Control Hawaii, 474 Kalanikoa St., S-104, Hilo, HI 96720; Glenn Shiroma, (808) 935-5629



Team PRC Racing Club, 176 Mamo St., Hilo, HI 96720; Charlie Kawamoto, (808) 935-3561



IDAHO

Capital Dirt Burners, 301 N. Bruce, Boise, ID 83712; Mike Ard, (208) 345-3906

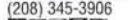


Dirt Stuff Plus, 5344 N. Yellowstone Hwy., Idaho Falls, ID 83401; Brian Krah, (208) 522-7576



ILLINOIS

Adam's R/C Raceway 7201 S. Adams, Bartonville, IL 61607; Ray Tigue, (309) 633-9300



AJ's Raceway & Hobby, 10211 Keslinger Road, Dekalb, IL 60115; A.J. Schultz, (815) 756-2772



C.I.R.C.A., 905 Bibbs St., Jacksonville, IL 62650; Sport 'n' Hobby, (217) 245-1375



C&R Hobbies, 39 E. Jones, Milford, IL 60953; Ray Craighead, (815) 889-4073



Dan's Hobby World, 18415 S. Halsted St., Glenwood, IL 60425; Dan, Bruce or Josh, (708) 754-7988



Gary's R/C Speedway, 1712 East Grove, Rantou, IL 61866; Gary Dale Flesher, (217) 893-9297



Glenwood Roseway, 18417 Halsted, Glenwood, IL 60425; Don's Hobby World, (708) 754-7988



G&R Raceway & Hobbies, 533 Bank Lane, Highwood, IL 60040; Randy Rose, (847) 432-9600



Hans' RC Race Place, 2051 2100th St., Atlanta, IL 61723; Hans Bishop, (217) 648-2915



HobbyTown Raceway, 9346 Virginia Rd., Lake in the Hills, IL 60102; Mike Hollingsworth, (847) 458-1777



HobbyTown Raceway, 2103 N. Verterans Pkwy., Bloomington, IL 61701; Gary Pritts, (309) 664-4451



Hopkins Hobbies, 723 South 8th St., Century Plaza, West Dundee, IL 60118; (847) 428-9621



Kokomo Hobby & Radio Raceway, 1108 E. Markland, Kokomo, IN 46901; (765) 457-5060



Leisure Hours R/C Raceway, 24121 W. Theodore, Bldg. 1, Plainfield, IL 60544; Scott Hill, (815) 439-1777 (track), (815) 439-1477 (shop)



Machesney Park, 1220 Shappert Dr., Machesney Park, IL 61115; (815) 282-1311



Marty's R/C Hobby, 1335 E. Broadway, Bradley, IL 60915; Gail or Marty, (815) 933-8441



Mitey Motor Speedway, 1109 N. Bloomington St., Rte. 23., Streator, IL 61364; Doug, (815) 672-4212



Monee R/C Raceway, 26049 Ridgeland Ave., Monee, IL 60449; Roy or Roberta Moody, (708) 534-2422 (track), (708) 799-5597 (office)



Pontoon Raceway, 3670 St., Rte. 111 Granite City, IL 62040-4304; Pat or Skip, (618) 931-1206



Outlaw R/C Speedway, 1614 Broadway, Mattson, IL 61938; (217) 234-6229



R/C Workshop, 3100 S.W. Adams St., Peoria, IL 61605; Al Kretz, (309) 673-4860



Radio-Active Raceway, 751 N. Bolingbrook Dr., #15, Bolingbrook, IL 60440; Jim, (630) 759-7557



Rector's R/C Raceway, RR 3, Box 104, Albion, IL 62806; Tim Wolfe, (618) 842-9379 (M-F), (618) 446-3282 (Sun.)



Shiloh Eagles Superspeedway, 308 N. Virginia Ave., Belleville, IL 62220; (618) 277-6030



SIRCAR Raceway, 1200 N. Marion, Carbondale, IL 62901; (618) 549-5885



Stanton Hobby Shop, 4718 N. Milwaukee, Chicago, IL 60630; Kevin Kane, (773) 283-6446



Valley Farms R/C Raceway, 706 Bypass 20, Cherry Valley, IL 61016; Dean or Debbie, (815) 332-4516 or (815) 547-5984



Wep Speedway, RR #2, Box 44 Lawrenceville, IL 62439; Bill Poe



INDIANA

Bremen Racing Ent., 308 N. Bowen, Bremen, IN 46506; Dale Heuberger, (219) 546-3807



Dirt Slinger's Raceway, 546 North 12th Ave., Beech Grove, IN 46107; Phil Riley, (317) 787-3815



Elliott's R/C Raceway, 2140 North Plate, Kokomo, IN 46901; (765) 452-0163



GM Raceway, 1651 W. Franklin St., Elkhart, IN 46516; Pete Russell, (219) 293-1827



Hardesty R/C Raceway, 11 East Plymouth St., Hamlet, IN 4653; Max Hardesty, (219) 867-8600



Hobby Barn Raceway, 1950 Springhill, Terre Haute, IN 47802-9694; (812) 299-5773



Hobytown U.S.A., 5385 E. 82nd St., Indianapolis, IN 46250; Bill Scott (317) 845-4106



KANSAS

Hobbytown USA, 2016 W. 23rd, Lawrence, KS 66046; Kevin Decembaris, (913) 865-0883


Mike's R/C Hobbies, 121 SE 29th St., Unit #3, Topeka, KS 66605; Mike Barnard, (913) 266-5767


Ottawa Outlaw Raceway, 114 South Main, Ottawa, KS 66067; Tom Wilson, (913) 242-1450


R/C Speed Dome and T.O. Pro Shop, 14 E. Avenue A, Hutchinson, KS 67501; Cody or Joe, (316) 665-6633


R/C World Raceway, 217 Brownie Ave., Scranton, KS 66537; John and Kyle, (913) 793-2313


RCRC Raceway, 507 N. 4th, Atwood, KS 67730; Bob Dunker, (913) 626-3261


T.O. Pro Shop, 14 E. Ave. A, Hutchinson, KS 67501; Cody Jandrakovic, (316) 665-6633


KENTUCKY

Bourbon City Raceway, 213 West Stephen Foster Ave., Bardstown, KY 40004; Ryan Barnes, (502) 349-0069


Johnny's Speedway, 3114 North St., L.Loyd Greenup, KY 41144; Charles, (606) 473-0075


Pit Stop Hobbies, 106 A Street, Benton, KY 42025; Robert Fitzgerald, (502) 527-8216

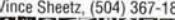

Rick's Hobby Farm, 2089 Park Rd., Hawesville, KY 42348; Rick Early, (502) 927-8527

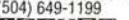

Trio Hobbies & R/C, 216 Redmar Plaza, Radcliff, KY 40160; Maurice Johnson, (502) 351-7547


LOUISIANA

AI's R/C Store, 1529 Anita, Sulphur, LA 70663; Al Gaspard, (318) 625-5880 or (318) 437-8545

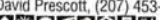

Baton Rouge Velodrome, 7122 Perkins Rd., Baton Rouge, LA 70815; Weldon Sharon, (504) 665-5616;


Indy Speedway & Hobby, 3753 General DeGaulle Dr., New Orleans, LA 70131; Vince Sheetz, (504) 367-1891


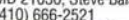
Pontchartrain Hobby Shop, 3755 Pontchartrain Dr., Slidell, LA 70458; (504) 649-1199


MAINE

Clay Bowl R/C Hobbies, P.O. Box 61, Greene, ME 04236; Pat Cap, (207) 946-5003


R/C Speedway & Hobbies, 87 Main St., Fairfield, ME 04963; David Prescott, (207) 453-4588


MARYLAND

Cockeysville Astrodome Racers, 10854 York Rd. (rear), Cockeysville, MD 21030; Steve Balaz, (410) 666-2521


Countryside Raceway (portable), 406 Pamela Rd., Apt. C, Glen Burnie, MD 21061; M&J's Promotional Entertainment, (410) 761-6196


Doug's Raceway, 2935 Crain Hwy., Waldorf, MD 20601; Doug Moran, Jr., (301) 843-6220




Hobby Town USA, 8223-11 Elliot Rd., Easton, MD 21601; Bill Dyke, (410) 820-9308


J.R.'s Race Place, 2935 Crain Hwy., Waldorf, MD 20601; James Radford, (410) 947-2766


Outback R/C Race Club, Maiden Lane., Manchester, MD 21102; Randy or Bonnie Henry, (410) 374-2878


The Track, 16806 Oakmont Ave., Gaithersburg, MD 20877; Mimi Wong, (301) 417-9630


MASSACHUSETTS

C&C Hobby & Raceway, 562 Russells Mills Rd., So. Dartmouth, MA 02748; Charlie, (508) 997-4131


Hi-Tech Hobbies, 1681 Broadway (Rt. 138), Raynham, MA 02767; Ruben, (508) 880-5373


Megadrome Raceway, Rt. 8 Curran Hwy., North Adams, MA 01247; Bob Blanchette, (413) 743-7223


Northboro Speedway, 168 Main St., Rte. 20, Northboro, MA 01532; Bob Trimble, (508) 393-8087


MICHIGAN

D.R. R/C, 22789 Northline Rd., Taylor, MI 48180; Bobby or Fred, (734) 287-7405


Freedom Hill R/C Raceway, 35372 Wellston, Sterling Heights, MI, 48312; Curley Grewe, (810) 776-5483


Hobby Hub, 5859 M99, Diamondale, MI, 48821; Verne Goebble, (517) 337-9278 or (517) 351-5843


House of Hobbies, 2863 West Shore Dr., Holland, MI 49424; (616) 786-3686


JT Superspeedway, W. Golden Ave., Battle Creek, MI, 49015; Jerry or Sam, (616) 965-0116


Larry's Performance R/C's, 43665 Utica Rd., Sterling Heights, MI 48314; Larry, (810) 997-4840.


Lazer RC Speedway, 2858 N. Wilmoth Hwy., Adrian, MI 49221; Russ Johnson, (517) 263-2806


MCR Raceway, 4601 Page Ave., Michigan Center, MI 49203; Sam Sprang, (517) 787-9161


N.M.R.C.C. Raceway, Hobby Toy, Main St., Gaylord, MI 49735; Ed Schneider, (517) 732-3963


Ovatt's R/C Speedshop, Cheeryland Mall, 1732 S. Garfield Ave., Traverse City, MI 49686; Jim Ovatt, (616) 947-6670


Raw Roots Race Tracks, 14623 East Croswell 1/4 mile north on 152nd (off U.S. 31), West Olive, MI 49460; Roy Bennick (616) 399-9338


R&L Hobbies & Racing, 9782 Portage Rd., Kalamazoo, MI 49002; Rex Simpson, (616) 323-3686; fax (616) 329-1744


Rodgers R/C Raceway, 7463 Ridge Rd., Britton, MI 49229; George Rodgers, (517) 451-8301


Thumb Raceway, 3441 Main St., Marlette, MI 48453; Jim Wilson, (517) 635-7848


Vicksburg Off-Road R/C Raceway, 50201 Silver St., Vicksburg, MI 49097; Tim, (616) 323-7963

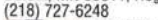

Village Hobbies-n-Crafts, 195 N. Elm, Hesperia, MI 49421; Alan or Fran, (616) 854-1374

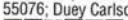

Village R/C Raceway, Prairie Ronde St., Decatur, MI 49045; Chuck Nolke, (616) 423-7878


West Michigan R/C Racers Club, 814 E. Railroad St., Hastings, MI 49058; Doug, (616) 948-2287 or Pat, (616) 945-3873


Willis Outdoor R/C Racetrack, 13922 Oakville-Waltz Rd., Willis, MI 48191; Mike Higgins, (734) 587-2012


MINNESOTA

Car Town USA, 2822 Piedmont Ave., Duluth, MN 55811; Roger Deloach, (218) 727-6248


Duey's Hobbies & R/C Raceway, 6600 Cahill Ave., Inver Grove Heights, MN 55076; Duey Carlson, (612) 450-1721


FunCity, 9100 Park Ave., Elk River, MN 55330; (612) 441-8365


Grand Rapids R/C Speedway, 2209 Hwy 2 East, Grand Rapids, MN 55744; Aaron Voges, (218) 326-6751


J's Radio Control Race Park, 22994 290th Ave., Starbuck, MN 56381; Jay Campbell, (320) 239-4827


Northwoods Hobby Raceway, 2638 Hwy 25 North, Brainerd, MN 56401; Tom Grogg, (218) 829-9257


Ray's Raceway Park, 105 3rd Ave. NE, Glenwood, MN 56334; Dan Winter, (320) 634-5246

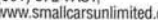

R/C Racing World, 235 Main Ave. North, Harmony, MN 55939; Mark McKay, (507) 886-5931 or (507) 886-2224


Southside Speedway, 2241 Marion Rd. SE, Rochester, MN 55904; Kevin Guy, (507) 281-3233


Time R/C Raceway, 20 West Lake St., Chisholm, MN 55719; RV, (218) 254-4321

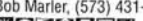

MISSISSIPPI

Joe McFadden Hobbies, 5531 Fox Meadow Dr., Meridian, MS 39307; Joe McFadden, (601) 483-7000


Small Cars Unlimited, 820 Cooper Rd., Jackson, MS 39212; (601) 372-FAST; www.smallcarsunlimited.com


MISSOURI

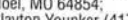
All Seasons Hobby, 29 O'Fallon Square, O'Fallon, MO 63366; Bob Daniels, (314) 281-8767


B&L Hobbies & Raceway, 2800 Anchor Dr., Park Hills, MO 63061; Bob Marler, (573) 431-9444


Fire Mountain Raceway, 8647 Commercial Blvd., Pevely, MO 63070; Dan Gordon, (314) 475-6449

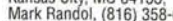

Greentree R/C Racepark, St. Louis Dirt Burners R/C Club, Marshall Rd., Kirkwood, MO: (314) 831-2194


North Missouri Raceway, 223 Graves St., Chillicothe, MO, 64601; Billy Johnston, (660) 646-1120


Ozark Mountain Speedway, Rt. #2 Box 50, H-Highway and County Rd. 31, Noel, MO 64854; Clayton Younker (417) 475-6222


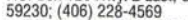


Ozarks R/C Raceway, Hwy 13N, Brighton, MO 65781; Gene Rhodes or Ron Hawkins, (417) 742-4376 or (417) 742-7223


Real Blue Vue Speedway, 12019 E. 47th St., Kansas City, MO 64133; Mark Randol, (816) 358-0238


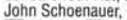
Real R/C Raceway, 24204 State Rt. 58, Pleasant Hill, MO 64080; Steve Hale, (816) 540-5584

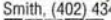

MONTANA

Stormer Raceway & Slot Motorplex, P.O. Box 126 Hwy. 2 East, Glasgow, MT 59230; (406) 228-4569


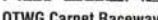
NEBRASKA

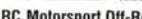
Goodyear Speedway and Off-Road, 4021 North 56th, Lincoln, NE 68510; Tom or Bob, (402) 464-5172


Hadar R/C Raceway, 55192 849th Rd., Norfolk, NE 68701; John Schoenauer, (402) 644-7922


Hobby Town USA Raceway, N 1st St. & Cornhusker Hwy., Lincoln, NE 68508; Ben Smith, (402) 434-5056


Mr. Bill's, 450 West 2nd St., Hastings, NE 68901; Bill J. Ries, (402) 462-4865


O.N.R.O.A.D., 3307 N. 58 St., Omaha, NE 68104; Cook Jacobs, (402) 556-8674


OTWG Carpet Raceway, 55129 849th Rd., Norfolk, NE 68701; John Schoenauer, (402) 644-7922


RC Motorsport Off-Road Raceway, 5600 Mass Rd., Papillion (Omaha), NE 68133; Marty Stepanek, (402) 593-6133


Salvation Army South Corps, 4032 Harrison St., Omaha, NE 68164; (402) 734-3414; fax (402) 734-3415


T & T Raceway, 476 26th Ave., Columbus, NE 68601; Tom, (402) 564-9216


The Speed Zone, 1524 Atokad Dr., South Sioux City, NE 68776; Rob Murdoch, (712) 428-4679, or Jim Carson, (712) 274-7731


Wacha's R.C. Speedway, 1823 23rd St., Columbus, NE 68601; Tom Smith, (402) 564-9216


NEVADA

Dansey's Indoor R/C & Hobbies, 741 N. Nellis, Las Vegas, NV; David Lugo, (702) 453-RACE, (888) 675-8963; www.danseys.com


Lizard Raceway, P.O. Box 1248, Verdi, NV 89439; Jeff Griffin, (702) 345-6573


NEW HAMPSHIRE

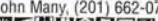
Axis Racing R/C Dragway, 4197 High St., Exeter, NH, 03833; Dan Peterson, (603) 659-4877


Economy R/C Speedway, 4 Maple St., Winchester, NH 03470; Harold Thomas, (603) 239-4482 or 239-6470


Robert's Railroad & Hobbies, 1335 1st NH Turnpike—Rt.4, Northwood, NH 03261; Robert M. Jeffers, Jr., (603) 942-5193


RT 106 Racepark, 743 Clough Mill Rd., Pembroke, NH 03275; Fred Farwell, (603) 224-RACE

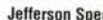

NEW JERSEY

America's Hobby Center Inc., 8300 Tonnelle Ave., North Bergen, NJ 07047; John Many, (201) 662-0777


Ray's American Raceway, 142 Wilson Ave., Englishtown, NJ 07726; Ray Whitehead, (908) 446-3737


Family Hobbies Raceway, 3576 N.W. Blvd. & Weymouth Rd., Vineland, NJ 08360; Linda Vogel, (609) 696-5790


Jackson R/C Racing, P.O. Box 565, Christopher Columbus Blvd., Jackson, NJ 08527; Al Sodano, (732) 364-6422, or Ed, (732) 928-8963

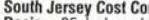

Jefferson Speedway, 5494 Berkshire Valley Rd., Oak Ridge, NJ 07438; (201) 697-7525


Jerry's Hobby Center & Raceway, 336 Rt. 22W, Greenbrook, NJ 08812; Jerry or Gary, (908) 752-6030


LBRA Track, 392 Warburton Pl., Long Branch, NJ 07740; (908) 222-5122


Millville R/C Oval, 114 N. High St., Millville, NJ 08332; William Denzot, (609) 327-4640


On Trax Hobbies, 3101 Rte. 70, Browns Mills, NJ 08015; Joseph DiGirolamo, (609) 735-0422


South Jersey Cost Controlled Racing, 25 Jackson Lane, Sicklerville, NJ 08081; Ray Murray, (609) 629-4809


The Race Place, 1151 Hwy. 33, Farmingdale, NJ 07731; John Fary, (908) 938-5215

Foothills R/C Speedway, 3200 Chestnut St., Oneonta, NY 13820; Dave Osterhoof, (607) 432-5098

RC

Frogdown Hobbies, Rt. 37, Mini Pines Village, Hogsburg, NY 13655; Dennis White, (518) 358-3686

RC

Hacr's Hobbies & Raceways, 120 Cayuga St., Canal View Mall, Fulton, NY 13069; Jack LaTulip, (315) 598-7063

RC

Jerry's Raceway, 111 S. Applegate Rd., Ithaca, NY 14850; Jerry and Lori Achilles, (607) 277-0940

RC

LI 1/4-Scale Racers, 63 Horton Dr., Huntington Station, NY 11746; (516) 351-5384

RC

Long Island Raceway, 168 Broad Hollow, Farmingdale, NY 11735; James, (516) 845-7223

RC

Performance Plus Radio Control Speedway/The Hobby House, 1141 1/2 Jones & Gifford Ave., Jamestown, NY 14701; (716) 488-1772

RC

P.R.O. Speedway, 5 Washington St., Cattaraugus, NY 14719; Marc Pritchard, (716) 257-3101

RC

Radio Hill Raceway, 1219 Shannon Corners Rd., Dundee, NY 14837; Bill Brewer, (607) 243-8641, or Greg Areford, (607) 243-7899

RC

Rampage R/C & Hobbies, 782 Rt. 9G, Rockledge Plaza, Hyde Park, NY 12538; Brian Walker, or Kevin Bobb, (914) 229-1379

RC

R/C Competition Corner, 2202 Brewerton Rd., Mattydale, NY 13211; Lori and Cos Cirriello, (315) 455-8718

RC

Silver State R/C Club, Centennial Park, Carson City, NV 89501; (702) 853-3953

RC

Southern Tier Raceway, 88 Paige St., Owego, NY 13827; Anita Harding, (607) 687-5395

RC

South Shore Hobby & Raceway, 464 East Main St., Patchogue, NY 11772; Benny or Bonnie, (516) 758-5567

RC

Tri County Remote Control Car Club, 33 West Decker St., Johnstown, NY 12095; Tom Levlie, (518) 725-1279

RC

Tri-state Area Radio Control Model Auto Club (TARMAC), 2830 Mountain View Rd., Poughkeepsie, NY 12603; Todd (914) 342-5409; Greg, (914) 528-5084; tracksite (914) 454-8276

RC

Walt's Hobby, 2 Dwight Park Dr., Syracuse, NY 13209; (315) 453-2291

RC

Westfield R.C. Speedway, 27 Clark St., Westfield, NY 14787; John or Jared Lindstrom, (716) 326-2339; 716-326-2309

RC

Whitestone, 30-56 Whitestone Expy., (Dept. of Motor Vehicles), Flushing, NY 11374; Rudolf Aridilla, (718) 966-6155

RC

ZOAR Road Speedway, 15318 Armes Ct., Gowanda, NY 14070; David & Gordon Ackler, (716) 532-9463

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The Antique Barn, 2810 Forest Hills Rd., Wilson, NC 27893; (919) 237-6778

RC

Atlantic Coast R.C., 8-A Lockhead Ct., Greensboro, NC 27409; Charlie Higgins or Harry Johnson, (336) 664-1277

RC

Badin Shore Raceway, 1730 Jackson Lake Rd., High Point, NC 27263; Jimmy or Tim Martin, fax (910) 431-6407

RC

C/C Hobby Speedway, 8358 U.S. Hwy. 220 Bus. N., Randleman, NC 27317; Steve & Mary Cox, (910) 495-3482

RC

C&H Raceway, 1400 N. Cannon Blvd., Kannapolis, NC 28083; Camera & Hobby Shop, (704) 933-5321

RC

C/W R/C Speedway, 1297 Charlotte Hwy., Asheville, NC 28730; Billy or Tim, (828) 684-0061

RC

Carolina Dragway, 907-D Warsaw Rd., Clinton, NC 28328; (910) 592-4569

RC

Chatham R/C Raceway, 326 Reno Sharpe Store Rd., Bear Creek, NC 27207; Dwight Fields, (919) 898-2991

RC

Green Flag RC Raceway, 107 Harley Rd., Wilmington, NC 28401; Mike McLemore, (910) 397-0676 or (910) 452-1620

RC

R & D Speedway, 418 Main St., Tarboro, NC 27886; John Dupree, (919) 823-2294

RC

Ride & Slide R/C Raceway, 5319 Yadkin Rd., Fayetteville, NC 28303; Bill Culbertson, (910) 867-4202

RC

RJ Off-Road Racing, 6172 Blalock Rd., Lucama, NC 27851; Robert Williams, (919) 239-0853

RC

Radio Jockey's Parkway, "R.J.'s," Rt. 9, Box 651, Fay, NC 28301; www.wave-net.net/mshutt

RC

Rosewood R/C Speedway, 651 Community Dr., Goldsboro, NC 27530; Glenn Elam, (919) 731-4734

RC

Southern RC Motorsports Club, Hwy. 17S., P.O. Box 1651, Shalotte, NC 28459; Mark Whitt, (910) 754-4902 or Eddie Ferster, (910) 754-8528

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Full Throttle Raceway, 600 Mt. Moriah Dr., Cincinnati, OH 45255; Greg Roshan, (513) 943-9009

RC

Fun for All Raceway, 675 College Dr., Batavia, OH 45103; Steve Donaldson, (513) 732-0440

RC

Glass City Radio Control, 2620 Ivy Pl., Toledo, OH 43613; Frank Johnson, (419) 472-1286

RC

Greentown R/C Raceway, 3353 Perrydale, Greentown, OH 44630; Chuck Lambert, (330) 364-6585

RC

Hobby Shop Raceway, 2096 Miami Blvd., Centerville Rd., Centerville, OH 45459; The Hobby Shop, (937) 436-6161

RC

Hobby World, 3499 SR 59, Ravenna, OH 44266; Tom Fry, fax (330) 296-0894

RC

Lafferty R/C Raceway, Box 153, 70222 Hurrah St., Lafferty, OH 43951; Chris Christman, (614) 968-4818

RC

Lakes Hobbies, 3425 Manchester Rd., Akron, OH 44314; Roy Spencer, (330) 645-6912

RC

Medina R/C Raceway, 754 N. Court St., Medina, OH 44226; Bill Aholt, (216) 723-0255

RC

Mid American Raceway, 13150 Airport Hwy., Swanton, OH 43558; Bill or Chuck, (419) 475-9459

RC

Nothing But Air R.C. Track, 34632 True Rd., Logan, OH 43138; Gary Lloyd, (740) 385-0288

RC

Scooters Hobby Hut, 234 Robbins Ave., #D, Niles, OH 44446; Dave "Scooter" Evans, (216) 544-9411

RC

Shiray's Hobby & Raceway, 19930 State Route 117, Waynesfield, OH 45896; Ray Zimmerman, (419) 568-8055

RC

TARCAR, 7216 Nebraska Ave., Toledo, OH 43617; Bill Bridges, (419) 826-3859

RC

Tri-State R/C Auto Racers, Joyce Park, Hamilton, OH, 45011; Ernie Bauhoffer, (513) 528-2052

RC

Van Wert R/C Raceway, 144 E. Main St. (above Hoverman Music), Van Wert, OH 45891; Mark Davis, (419) 232-2112

RC

Y-City Hobby & Speedway, 120 S. 6th St., Zanesville, OH 43701; Kevin McKenna, (614) 455-3025

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OREGON

Competition Racing Association, 17941 NE Gleason, Portland, OR 97230; Mark Taylor, (503) 761-1334

RC

D.I.R.T. (Diamond International Race Track), 65540 73rd St., Bend, OR 97701; Daley and Edward Gilet, (541) 388-2932 or 1-800-475-6040, ext. 777

RC

Junior Vehicle Speedways, 3634 Table Rock Rd., Medford, OR 97501; (541) 664-7810

RC

Pit Stop Hobby, 634 N. Coast Hwy., Newport, OR 97365; Richard Wood, (541) 265-2825

RC

R/C Craze Speedway, 300 Ashland Lane, Ashland, OR 97520; Shawn Lazareff, (541) 482-4786

RC

R/C Plus Hobbies Raceway, 185725th St. SE, Salem, OR 97302; Ron Smith, (503) 364-9188

RC

R/C Speed Center, 2810 N. Pacific Hwy., Medford, OR 97501; Gene and Betty Jean Skelton, (541) 779-8298

RC

Yamhill County R/C Car Club, 722 Morgan Ln., McMinnville, OR 97128; Larry Rucker, (503) 472-7234

RC

PENNSYLVANIA

Bachman's Speedway & Hobbies, Box 306, Effort, PA 18330-0306; Jeffrey Bachman, (610) 681-5845

RC

Brookville Hobby Shop, 170 Main St., Brookville, PA 15825; Mark Tonell, (814) 849-7385

RC

Columbia Racing Association, 128 N. Front St., Philipsburg, PA 16866; Lurch Hammal, (814) 342-7114

RC

Cooks Way Raceway, Cook's Way, Mt. Pleasant, PA 16666; Bob Rhodes, (412) 547-5719

RC

Tri-State R/C Raceway, 205 Hallene Rd., Warwick, RI 02886;
Raymond Dean, (401) 738-4908
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

SOUTH CAROLINA

Carolina R/C Speedway, 4148 Calhoun Memorial Hwy., Easley, SC 29640;
Craig Prah, (864) 295-1209;
www.carolinarc.com

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Extreme R/C Raceway, 5976 Grace Lane, Myrtle Beach, SC 29577;
Kevin Bullock, (803) 236-2083
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

The Grove Racing Center, 939 S. Anderson Rd., Rockhill, SC 29730;
Mike Durham or Don Faris, (803) 327-4121
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hobbies and More, 1570 S. Main St., Darlington, SC 29532;
Jerry Pollard, (803) 393-0355
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

J&M R/C Hobbies, 5341 Dorchester Rd., Evanston Plaza, N. Charleston, SC 29418;
Mike Smith, (803) 552-9449
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Midway Hobby and Raceway, 707 Sulphur Springs Rd., Greenville, SC 29611; Allen A. Dodson, (864) 246-6335
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

ORA Atomic Racing Facility, 373 Boyd Pond Rd., Aiken, SC 29803;
Bill Jackson, (706) 855-0846 or (803) 642-0314
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

SOUTH DAKOTA

Action R/C Raceway, 107 N. Main, Mitchell, SD 57301; (605) 996-6895
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Boomerangs Raceway, 105 N. Main, Hartford, SD 57033;
Ed Smithback, (605) 528-7345
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Dakota Off-Road Racers, 2989 W. Br. Co. 12, Aberdeen, SD 57401; (605) 228-0604
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Goldtrax Raceway, 409 E. High, Lead, SD 57754;
Steve Brown, (605) 584-2355
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

K&B Speedway, 27283 SD Hwy. #115, Harrisburg, SD 57032;
Mike Kosetin, (605) 743-2582
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

R/C Action Raceway, SE Corner at 484th & Hwy. 38, Sioux Falls, SD 57105;
Brian Cox, (605) 373-0511
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

TENNESSEE

D&M's Downtown Raceway, 2703 U.S. Hwy. 411S, Maryville, TN 37303;
(423) 681-8919
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hillside R/C Raceway, 4194 Oakhill Rd., Dayton, TN 37321; John and Rusty Tipton, (423) 775-4799
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hobby Town USA, 2000 Mallory Lane, Franklin, TN 37067;
Bobby Mills, (615) 771-7441
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Machine-Head Straits, 938 Grandmere Rd., Lawrenceburg, TN 38464; Larry and Eliane Sanders, (615) 762-6630
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

MSA R/C Racing, Rt. 12 Box 489 B, Crossville, TN 38555; D.R. Findley, (615) 456-0027
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Sparta Raceway Park, 32 N. Main St., Sparta, TN 38583; Carl (Buddy) Elrod, Rt. 5 Box #652, Sparta, TN 38583; (615) 836-8450 or (615) 761-3407
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

TnT Raceway, 643 Loop Hollow Rd., New Tazewell, TN 37825; Cliff Swett, (423) 626-9065 or (423) 869-8942
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

W.O.W. Raceway, 59 Luray Rd., Beech Bluff, TN 38313; Kelly Bean, (901) 427-7874; email: windx60@pipeline.com
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

TEXAS

215 Speedway, 1814 County Road 215, Abilene, TX 79602;
Clyde Gardner, (915) 673-2351
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

B&B R/C Hobbies, 700 East 4th, Big Spring, TX 79720; Walter Bumbulis, (915) 263-1790
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Big Mike's R/C Raceway, 1405 W. Cotton St. (behind the Locker Room), Longview, TX 75604; (903) 297-7814
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Comanche Trail RC Park, City Park, Big Spring, TX 79720; Allen Nichols, (915) 263-4241
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Discount Hobbies, 1722A West Anderson Loop, Austin, TX 78757;
Tony Bermudez, (512) 458-2324
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Drycreek Raceway, 5903 Co. Road 2297, Quinlan, TX 75474;
Micky Alphin, (903) 883-4060
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Eastex Raceway, 45000 Hwy. 59 N., New Caney, TX 77357;
Brent Mahaffy, (713) 399-9777
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Fastrack Raceway, 301 Edith Drive, El Paso, TX 79924;
Hector Gonzalez, fax (915) 779-4524
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Finish Line Raceway, 2775 N. Hwy. 360, Suite 637, Grand Prairie, TX 75050; Steve Manning, (817) 652-3340
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Flip & Spin R/C, 5957 Jones Rd., Bryan, TX 77807;
Garland Crabb, (409) 822-7311
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hal's Hobby Raceway, 1440 Bessmer, El Paso, TX 79936;
(915) 591-2213
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

The Hobby Center Raceway, 4104 Stan Schlueter Loop, Ste. 1, Killeen, TX 76543;
Lawrence Remick, (817) 690-7311
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hobbycraft Speedway, 819 N. Main St., Corsicana, TX 75110;
Keith Hoffman, (903) 872-6761
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hobbytown USA, 7676 FM 1960 W., Houston, TX 77070;
Fred Pfalman, (713) 955-7097
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hobbytown USA, 999 E. Basse Rd., Suite 177, San Antonio, TX 78209;
Joe Sena or Clark Baisdon, (210) 829-8697; fax (210) 829-8707
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Indy R/C World, 220 Saturn Rd., Garland, TX 75041; Steve Webster, (214) 271-4844; fax (214) 271-4502
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Issac's Race Track, 18177 Gulf Frwy., Houston, TX 77598; Issac Ben-Ezra, (281) 488-8697
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Keyser's Hobbies, 1643 Texas, College Station, TX 77840;
Bill Bennett, (409) 693-8095
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

MBRC Off-Road Raceway, 204 D&E Valley Lane, Kennedale, TX 76133; (817) 292-5055
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

North Houston Speedway, 11847 Spears Rd., Houston, TX 77067;
Bob or Carol Hillin, (713) 872-2471
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

North Texas 1/2 Scale Association, 3905 Sandia, Plano, TX 75023;
Dean Densmore, (972) 519-0324
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Performance Raceway, 11066 Witte Rd., Houston, TX 77055; Jorge Tabush or Terry Schmid, (713) 464-4458
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Rev It Up Raceway, 3076 Keller Rd., Smithville, TX 78787; Rev, Alton T. Edwards, (512) 360-5443
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Rick's R/C Raceway, 238 Scenic Loop, Boerne, TX 78000;
Rick, (210) 981-2245 or Rich, (210) 590-1805
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Rough Country, 905 Jacksboro Hwy., Wichita Falls, TX 76301-5310;
Robert Kerr, (817) 322-2453
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Star/Car Raceway, 5802 Patton St., Corpus Christi, TX 78415; Glen Stead, (512) 949-8525; Race Hotline, (512) 881-6105
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

T&T Eagle, 161 W. Spring Creek Pkwy., #601, Plano, TX 75023;
Tony Welborn, (214) 517-0562
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Terminal Velocity R/C Raceway & Supply, 200 Wallington, Ste. 223, El Paso, TX 79902; Rick or Frank, (915) 534-9198
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Texas Speedway, 6707 Chimney Rock, Bellaire, TX 77401
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Tiger's Den R/C Speedway, 702 E. Broad St., Mansfield (DFW), TX 76063; Bob Burns, (817) 477-5513
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

T.O. Offroad Raceway, 6236 Quail, El Paso, TX 79924;
Eren Saenz, (915) 821-7522
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Warehouse Radio Controlled Raceway, 612 W 4th St., Amarillo, TX 79101; Craig or Darren Waddell, (806) 374-6485
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

W.E.S. Hobby Race, 980 S. Fourth St., Beaumont, TX 77701;
Edmond Richards, (409) 839-4929
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Wild Bill's Raceway, 535 E. Shady Grove, Irving, TX 75060; Lynn Morgan or Tom Nix, (214) 438-9224
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

UTAH

Intermountain R/C Raceway, 8481 W. 2700 S., Magna, UT 84044;
David Mott, (801) 250-8303
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Payson R/C Raceway, 955 South Main, Payson, UT 84651; Gus Wood, (801) 224-3852 and Lasca Wood, (801) 222-8677
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Vision Hobby, 352 N. State St., Orem, UT 84057; Ken Rice, (801) 226-6226
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

WOR Raceway, 3170 Brinker Ave., Ogden, UT 84401;
Brian Worton, (801) 393-2530
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

VERMONT

Barre Town R/C Club, 14 South Main St., Wall St. Complex, Barre, VT 05641; Russ Tribble or Pete Perreault, (802) 888-2860 or (802) 476-9458
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Bradford R/C Racing, Main St., Bradford, VT 05033;
Seth Bean, (802) 222-9674
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Stoughton Pond Raceway, Stoughton Pond Rd., Perkinsville, VT 05151; Rick Adams, (802) 263-9321
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

VIRGINIA

Bob's Hobbies & Raceway, 7422 Brandywine Rd., Mechanicsville, VA 23111; Bob, (804) 746-2758
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Brad's Hobbies, 1105 Greenville Ave., Staunton, VA 24401;
Brad, (540) 885-3642
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Brown Brothers Hobbies, 924 North Main Street, Dumfries, VA 22026;
Joel or Bob Brown, (703) 221-5746
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Cooper's R/C Race Center, 4000 Sago Rd. (969), Chatham, VA 24531; Norris Cooper, (804) 724-7342 or (804) 724-4182
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

DRCW Raceway, Debbie's RC World, 2200 Commerce Parkway, Virginia Beach, VA 23454;
Les Modlin, (757) 340-6681
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Gloucester Scale Hobbies, 2352 George Washington Memorial Highway, Hayes Plaza, Hayes, VA 23072;
Rob Thein, (804) 642-3484
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hobby Hangers Speedway, 14014 D Sullyfield Cir., Chantilly, VA 20151;
Kwang or Billy, (703) 631-8820
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

The Hobby House, 116 Edds Ln., Sterling, VA 20165;
Oppie, (703) 444-0333
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

KC's Radio Control & Repair, Rt. 4, Box 312, Trents Ferry Rd., Lynchburg, VA 24503; Curtis or Kim Wright, (804) 384-8596
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Olde Towne Hobby Shoppe, 9105 Center St., Manassas, VA 22110;
Arnie Levine, (703) 369-1197
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Race World Hobbies, 6102 Lakeside Ave., Richmond, VA 23228;
Larry Boyd, (804) 553-8040
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Roadmasters/ Rick's Hobbies, 12201 Balls Ford Ave., Manassas, VA 22110;
Rick, (703) 330-6833
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Shamroc Raceway, 106 Cheviot Place, Stephens City, VA 22655; Scott Janow, (540) 869-3551; Note: track is located in Winchester, VA
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Thunder Road RC Racing, P.O. Box 1022, Troy, VA 22974-1022;
James Palmer, (804) 589-8174
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

The Tiltyard, Route 1, Box 235A, Dayton, VA 22821; (540) 828-3476
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Trackside Hobbies, 1920 E. Pembroke Ave., Hampton, VA 23663;
Rick Cardwell, (757) 723-4170
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Trainlano R/C Racing, 5661 Shoulders Hill Rd., Suffolk, VA 23435;
Frank Stevens, (757) 488-5454
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

WASHINGTON
Alfie's, 108 South K St., Aberdeen, WA 98520; (360) 533-6638
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

A-Main Raceway, 14011 NE 3rd Ct., Vancouver, WA 98685;
Monty Coleman, (360) 571-8404
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Burien Toyota R/C, 15025 1st Ave. South, Seattle, WA 98148
Ray Meek, (800) 654-6456
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

C&C Raceway, 266 Lind Ave. NW, Revton, WA 98055;
Charles Lakin, (206) 227-5167
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Cedardale Raceway, 1673 Cedardale Road, Mount Vernon, WA 98273;
Joe Madonia, (360) 659-0072; e-mail: getchell@halcyon.com
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Four Season R/C Racing, 2941 Sleater Kinney Rd. NE, Olympia, WA 98506;
Gary and Sharon Brown, (360) 491-2430
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hale's R/C Raceway Park, 10611 136th St. E. Puyallup, WA 98374; Walt Hale, (206) 845-7675
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Hannegan Speedway, 4212 Hannegan Rd., Bellingham, WA 98225;
Dana Hoggarth, (360) 734-4090
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Raceway Hobbies, 188 Sunset Ave. S., Edmonds, WA 98020;
Brian Bodine, (425) 774-3285
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Schmidt's Auto Parts, 10305 Old Hwy. 99, Marysville, WA 98271;
Jon Fallia, (206) 653-8838
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Spokane Indoor Raceway, 6422 E. 2nd Ave., Spokane, WA 99212;
Dave Mapston, (509) 534-RACE
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Tacoma R/C Raceway, 6305 6th Ave., Tacoma, WA 98406;
Scott Brown, (206) 565-1935
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Tearor Raceway, Fantasy World Toy and Hobby, 7901 S. Hosmer, Tacoma, WA 98408;
Dave Kleinman, (206) 473-6223
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Ultimate R/C Raceway, 907 Cole St. #3, Enumclaw, WA 98022;
Dan Daugherty, (360) 802-2388
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

West Coast Hobby & Raceway, 2239 Stevens Drive, Richland, WA 99352;
Darren Shank, (509) 375-4995
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Zep's Hobbies & Raceway, 530 Interlake, Moses Lake, WA 98837;
Steve Ralph, (509) 765-8191
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

WEST VIRGINIA

Burr-Fab Raceway, 90 Davis St., West Union, WV 26456;
Mark Travis, (304) 873-2487
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Fulton's R/C Raceway, 2646 Chapline St., Wheeling, WV 26003;
James Fulton, (304) 233-5355
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Left Turn Hobbies, 100 Saco Ln. (by Post Office), Glen White, WV 25849;
Stretch, (304) 255-3930
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Race Zone, Hopewell Rd., Rt. 8, Box 343A, Fairmont, WV 26554;
Joe Clutter, (304) 368-1000
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

WVRC R/C Club, 142 West Main, Bridgeport, WV 26330; D.W. Weed
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

WISCONSIN

ABC R/C Inc & Raceway, 244 W. Main St., Waukesha, WI 53186;
Dick Mathiesen, (414) 542-1245
A B C D E F G H I

Panik Raceway, Teutonen Str. 5, Troisdorf, Germany 53844; Guido Kraft, 0224-400259



GREECE

FORA-Fanatic Racing, 20 Irinis Ave., Peiki, Athens 15121; Mr. T. Diamandakis, 8025556



GUAM

R/C International Raceway, P.O. Box GK, Agaña; Robert (Buddy) Simpkins, (671) 477-3207



HONDURAS

Autodromo Accion, Quinta Santa Maria, San Pedro Sula, Honduras, Colonia Rivera Hernandez; Eduardo Hondal, (504) 52-2061



HONG KONG

H.K.R.C. Model Car Racing Club, Lot 2130-2137, Ho Po Tsuen, Sha Tau Kok Rd., N.T., Hong Kong; Alex Chan, (852) 659-2822

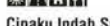


Kingsville Buggy Arena, Wong Chuk Yeung Village, Shatin, N.T.; Pak Yeung, (852) 607-0828



INDONESIA

1st Circuit, Kompleks Villa, Kalijuduh Indah, Surabaya; 62-31-5681965



Cipaku Indah Speedway, J1 Cipaku Indah II/2, Bandung 40143, Indonesia; Cipaku Indah Hotel, Erwin Levi, 62-22-218-228, fax - 62-22-210-223

Karinda Off-Road R/C Car Model Circuit, Perumahan Bumi Karang Indah, J1 Karang tengah Rayam lebak bulus, Jakarta-Selatan 12440; Wiwied W. Soedarmadi, 62-21-7900878



Pondok Cabe Circuit, J.L. Kunir No. 83, Pondok Cabe, Ciputat, Jakarta, Indonesia; Ali Agus Salim, 7403568-9; fax 7491533



Sentul World Hobbies, Citeureup Bogor Jawa Barat, Indonesia; International Circuit Hilton Hartanto, Ian Sentul International Sirkuit, KM 42 62-21-751-2439



ISRAEL

Ircca Off-Road, Rahanana, Israel; Yaron Zafris, (972) 030549937



Nahshoneat, Abba Nilel Silver Str. 64, Haifa, Israel 32809; Golan Levy, (972) 039386444 or (972) 04231252



ITALY

Associazione Modellisti Cossato, via P. Maffei, Cossato 13014, Biella, Italy; Zanellato Romildo, 015-405881; fax 015-922709



JAPAN

Xiwakuni R/C Track, PSC 561, Box 978, FPO AP 96310-0978; David T. Eck, 81-6117-53-3662



Yokota R/C Racers, PSC #78, Box 4274 APO AP 96326, Tokyo, Japan; Brad Johnson, 011-813-1175-7655



Zama Off-Road Raceway, 17th ASGCM Unit 45013, Box 3232, APO AP 96338 Japan; SFC Ken Campbell, 81-3117-63-8478



KUWAIT

Inferno DX 4WD Track, P.O. Box 9167, Ahadi, Kuwait 61002; Yousuf Acqatari



LEBANON

Wild Willy RCC, Oscar St-Jal Eddie, Beirut, Lebanon; 00961-1-403751



MALAYSIA

Tititwangsa Raceway, Lot 128, Ampang Park. Shopping Centre, Jalan, Ampang, Kuala Lumpur, Malaysia 50450; R.A.C.E. Sdn Bhd., 03-2614496



Jump Square Arena, AI21, SG, Buloh N/V, 47000, SG, Buloh, Selanhor, Malaysia; Thomson Chong, (603) 656-2513



MEXICO

Alces Off Road, Lopez Mateos y Rayod S/N, Ensenada, Baja California, BC 22830; Jorge Bustamante, 667-6-1476, 61477, 86729



Baja Jr., H. Valdez 151 Pte. Y Gmo. Prieto, Los Mochis Sinaloa 81200; Memo Asencio, Gaby Macias, 681-20276; fax 681-26430



Club Kyosho de Automodelismo Departano, Av. Pacifico 216 Coyacan; Ajusco-Toluca Km 15.3 DE, Mexico 04330, Ing. Jorge Perez Holder, 525-544-08096; fax 525-544-7133



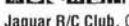
Cinamo Coca-Cola, Ruiz Cortines 620 Col. Central de Carga, Guadalupe, Nuevo Leon 67120; Sergio Garza, 83-35-70-09/79-32-33



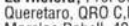
Hobby Centro, 12 De Diciembre No. 3070-A, Guadalupe, JAL 45550; Alejandro Ortiz Del Toro, 36-21-46-28



Hobby's Formula, Au observatorio 457 DF 01120; 905-502-3620



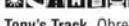
Hobby Model's Raceway, Blvd. Garcia de Leon, 1555, Morelida, Michoacan 58260; 431-5-01-22



Jaguar R/C Club, Calz. Zavaleta 116, Puebla 72150; Chema, Denise or Chiro, 22-31-00-91, 22-33-00-94



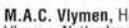
La Hielera, Prol Corregidora Nte 350, Queretaro, QRO C/P 76160; Jorge Morelos Rabell, 42-12-15-25



Pista Casino, Hotel Casino de la Selva, Cuernavaca, Morelos 16507; Luis Duhart, 73-19-12-38



R/C Racing Club, Obsidiana #2900, Zapopan, Jalisco 44560; Fernando Hernandez, 3-616-73-47



Tony's Track, Obregon 364 Sur, Culicán Sinaloa; Guillermo Prieto, 67-165708-168141

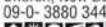


NETHERLANDS

H.F.C.C. Hollandia, De Werf 60, The Hague, The Netherlands; G. de Jong, 031-070-3679820



M.A.C. Vlymen, Hendriklaan 6, Vlymen, Netherlands; Ju Kasteren, 31-73-517906



NEW ZEALAND

Capital Model Racers, Avalon, Lower Hutt, New Zealand; Roger Whitmarsh, 04-566-5714



Counties R/C Raceway, Pukekohe Showgrounds, Station Rd., Pukekohe, New Zealand; R. Northcott, 09-23-86904

Harewood Radio Control Car Club, 550 Sawyers Arms Rd., Christ Church, New Zealand; Dean Johnson, 09-0-3880 344

Papakura Indoor R/C Car Club, 25 Tainere Cres., Papakura, Auckland; Colin Perry, 09-298-4711



Western District R/C Off-Road Car Club, CNV Bancroft/Akatea Drive, Auckland; Chris, 09-838-5201



NORWAY

Aurskog R/C Club, Aursmoen, 1930 Aurskog, Norway; Tommy Gjeleseth, 47-63-86-21-61



Dalen Raceway, P.B. 728, 6401 Molde, Norway; Johnny Reitan, 94 64 52 95



Hadeland Raceway, 2750 Gran, Gran Norway; Dag Bakke-Nilsen, 61330405

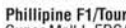


Store-Baller Raceway, 2750 Gran, Gran Norway; Ola Raastad, 61330225

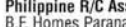


PHILIPPINES

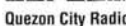
Boyet R/C Hobby Shop, Unit No. 10 Lucas Commercial Center, Marcos Hiway, Decembrat, Antipolo, Rizal; Jose "Boy" Chua, 721-2555



Philippine F1/Touring Club, Super Mall I, EDSA, Quezon City 1156; Raymond Aguilar/Ron Villafior, 896-64-15/23-30-08



Philippine R/C Association, B.F. Homes Paranaque, Metro Manila 1700; Ronald/Manny Villafior, 23-30-08



Quezon City Radio Control Club, Quezon City Memorial Cir., Quezon City; Benjie Lumanlan, 731-94-53



PORTUGAL

Aero Clube da Madeira, Rua do Castanheiro E-2, Funchal, Madeira, Portugal; fax 091-221265



SOUTH AFRICA

Banana County R/C Racing Club, P.O. Box 988, Margate, 4275; Dennis Steenmans, 27-0-391-20975



Frantic Raceway, Santam Plaza, Shop 16B, Welkon; Wayne Roodt, fax and phone 27-57-35-72849;



Gordons Bay R/C Club (GBRC), Andrew Norman Sports Centre, Gordons Bay, Cape Province



Andre Hollander, 024-512865



Lowveld Radio Control Thunderdrome, Lion's Club Kanyamazne Rd., Nelspruit, Eastern Transvaal; Martin Van Der Merwe, 01311-534-6415



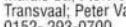
Parow Radio Car Club, Northern Sports Complex, Parow, Cape Province; Stirling Spengler, 021-945-4957



Phoenix Raceway, 11 Tugela St., Stiffontein, Transvaal; Lionel Edwards, 018-4842863



Pick 'n' Pay Model Car Club, P.O. Box 11654, Klerksdorp 2570; H. Grobbs, (27) 18 46245421



Pietersburg Model Racing, Landros Marais St., Pietersburg, Northern Transvaal; Peter Van Vuuren, 0152-293-0700



R.C. Superbowl, Elsberg Sports Grounds, Elsberg, Johannesburg; Karl Fawcett, 27119076145



R.A.C.E. Off Road, Cecil Payne Stadium, Maraisburg, Gauteng; Derrick Plank, 682-2173



Rustenburg Off-Roaders, Olympia Stadium, Rustenburg, Northwest Province; Jan Van Vollenhoven, 0142-24-846



Pretoria Off Road R/C Club, Joost Bekker Caravan Park, Decemberville, Pretoria, Gauteng; Gert Swart, 012-377-3238



SPAIN

ADAM, Mina Flores de la Sienna, Madrid, Spain Alvaro Sarabia, 01-7471113



A.D. Diabillos, Morata de Jalón, 50.260 Zaragoza, Spain; Juan Carlos Vicente de Vera, 34-76-605350



Club Modelismo Catilla, P.O. Box 491, Burgos, Spain 09080; A.J. Pereda, 34-47-240130



Club Social Sevillana, Crta. Pulianas S/N, Granada, Spain; Oscar Saenz, 958-275282



Motoclub Castellon R.C., Rafalafena, S/N, 12004 Castellon, Spain; Octavio Traver (34) 64 229705, (34) 64-237411



Outlaw-Ultima II, Puerto Rico 27, Madrid, Spain 28016; Juan Vacas, (34) 915197298



ROARCR, Naval Station, Rota, Spain (P.O. Box 53, FPO NY, NY 09540-0013); PO Kelly Sexton, 34-56-822652



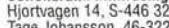
CRAEM, La Elipa, Madrid, Spain; Pablo Llorente, 91-3865952



SWEDEN
Amalie Racetrack, Hjort Vagen 14, 5-46632 Sollenbrunn, Sweden; Tage Johansson



PROCAR Speedway, Industrigatan 8, 430 20 Veddice, Sweden; Lars Nordin, 46-0-340-38784; fax 46-0-340-38694



Sollenbrunn Miniracing Club, Hjortvagen 14, S-446 32 Sollebrunn; Tage Johansson, 46-322-40944



Staffanstorps Highway 1:8 Track, Nummer Ettavagen 5, Vag 108 fran Staffanstorps mot Lund, Staffanstorps 245 45 Sweden; B'rie Petersson, 46 0-2656832



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SWITZERLAND

E.M.B.C.M. Raceway, Mr. Lotfi Zarrouk, Bahnhofstr. 28, CH-8854 Seinen; Markus Schmid 41-1-8605229



ERMC Raceway, 14 Ch de Taverney, 1218 Grand-Saconnex, Switzerland; M. Maurer, 19-41-22-798-9765

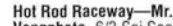


JMRCV-Terraindu Levant, Chemin ou Levant, 1290 Versoix, Geneva, Switzerland; fax 19 41 22 7790805



THAILAND

Bangkok R/C Spa Huamark, 164/1 Lardprao SOI 96, Wangthonglang Bangkok, Bangkok, Thailand 10310; Mr. S. Sanghavas, 662-931-8390; fax 662-587-1186



Hot Rod Raceway—Mr. Chairit Vongphate, 6/3 Soi Soonvijai Phetburi Rd., Hueykwang Bangkok, Bangkok 10310; Mr. Vichai Vongphate, (662) 8602922-5

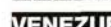


Radio Control Speedway, 16 Soi Suea-Yai-Uthit, Rajadapisek Rd., Chatujak, Bangkok 10900; Mr. Noppakao and Mr. Suteerapong S., (66-2) 541-6398; fax (66-2) 541-6399



TURKEY

B&B OTD Güven Raceway, Gaziosmanpasa Sokak Kadiöky, Goztepe Parki, Istanbul, 0216-4186118, or 0216-3490742



VENEZUELA

R/C Mariche, KM4 Zona Industrial, Del Este Via Mariche, Caracas, DF 1070-A; Bruno Morganti, 58-02-241-3969 or 241-4993



Santa Paula R/C Club, Polideportivo de Santa Paula urbanization Santa Paula El Cafetal, Caracas, P.O. Box 66886 Plaza las Americas; Isaac Abecasis 02-2423954 or Franco Agrusa 02-4510314



WEST INDIES

Island Raceway, 8 Mile Post Jacks Hill, St. Andrew, Jamaica, West Indies; Rodney Littau, (809) 926-7034 or 927-1198



ZIMBABWE

Mosi-Oa-Tunya, H9619 Highland Harare, Harare Country, Masloraland, Zimbabwe; 46237



ATTENTION TRACK OWNERS!

Track Name

Chris's

BACK LOT

The opinions expressed on this page do not necessarily represent the opinions of the entire *Car Action* staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Chris's Back Lot, c/o R/C Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. My email address is: chris@airage.com.

BY CHRIS CHIANELLI



Stampede Wins!
... because I said so



My catatonic colleagues Peter, Steve, Greg and George think they're really cute. They thought they would filibuster the fun—cut me out, as it were—from adding my two cents concerning the monster truck article. Just when I had all but acquiesced, the notion of surrender was blown to bits when I suddenly remembered: I can say whatever I want! Why? Because this is MY PAGE! MINE, MINE, MINE!! OK; I'm calm now. But in the future, I really must try to remember that simple fact; I would be spared much self-inflicted trauma. Hmmmm, maybe I'm the catatonic one?

As they say in Brooklyn, "not-fur-nuttin" (whatever that's supposed to mean), but my vote goes to the Traxxas Stampede. Many years ago, when the Traxxas crew had only one car—a ready-to-run, solid-axle, entry-level car called the Cat—they came out with their first attempt at racing with the Blue Eagle Stadium Truck. I reviewed it and liked it—a lot! Back then, there were those in the industry, who will remain unnamed, who laughed at me. All I can say is Traxxas is doing amazingly well today because it has never wavered from the philosophy: give the R/C car enthusiast what he wants for a great price. Aside from price, there are many other features I like about the Stampede. Its design is sound, simple and very rugged. It survived boy racer Greg's ridiculously high jumping antics with no damage. It was designed as a truck from the ground up, and its high ground clearance, ladder-bar chassis gives it an exciting full-scale flair. Let me mention a few other things I like, then I'll drop the subject (I promise). The suspension arms are long; suspension travel is excellent; the shocks are smooth; rim offset is individually optimized for the different geometry found at front and rear and Traxxas' customer service is great. Oh, yeah, and Traxxas' art director Kent is a really cool guy.

A LITTLE NEEDED PERSPECTIVE:

Dear Chris—Oh, great Luna worshipper, tell me if you can relate. Top 10 things that suck:

1. Areas that don't have just ONE, 1, uno, un, JUST ONE PLACE TO RACE!!!
2. When you buy a brand-new Losi XX 'CR,' and you bust a brace on the first day.
3. When you're sprayin' your new Lexan body outside (cuz yer parents have this stupid problem with fumes) and a gust of air comes along and covers your first coat with dust and leaves.
4. When you ditch your new RC12LS down a drain and have to crawl into the smelly sewer to retrieve it; then you find out the sewer water fried your speed control. (Have you ever seen a speed control burn?—I mean flames and all!)
5. Coaxial cable (the screw-on kind).
6. People who cut on your car.
7. The fact that the Shelby Cobra is not produced anymore.
8. E-clips.
9. Finding out the day after you bought the Novak Hammer Pro that the Tempest is out on the market (growl).
10. When your subscription to the world's best freakin' magazine runs out [Dogbone! Your subscription to *MAD* magazine ran out? That sucks!]

Sorry for dumping on you like that, but well, you're probably the only one who understands.

—Devoted to the "Back Lot," Scott (Dogbone) Price

Yea, Scott,

I can relate, especially to the painting outside nonsense; my driveway is the town hotspot for those tiny tornadoes of dust and leaves. Yea, Dogbone, these things can suck. But, on the other hand, in the grand scheme of world suffering, it ain't no big thing.

Here are a few cool things:

- Friends you can build your own track with.
- Having something to do on a rainy day, like fixing your car. (Join the club, man; sooner or later, all cars break something.)
- Today, you can build a full-scale Cobra that's actually superior to the original.
- Having a dog, like Luna, that knows how you feel when you screwed up your paint job.

—CC

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